

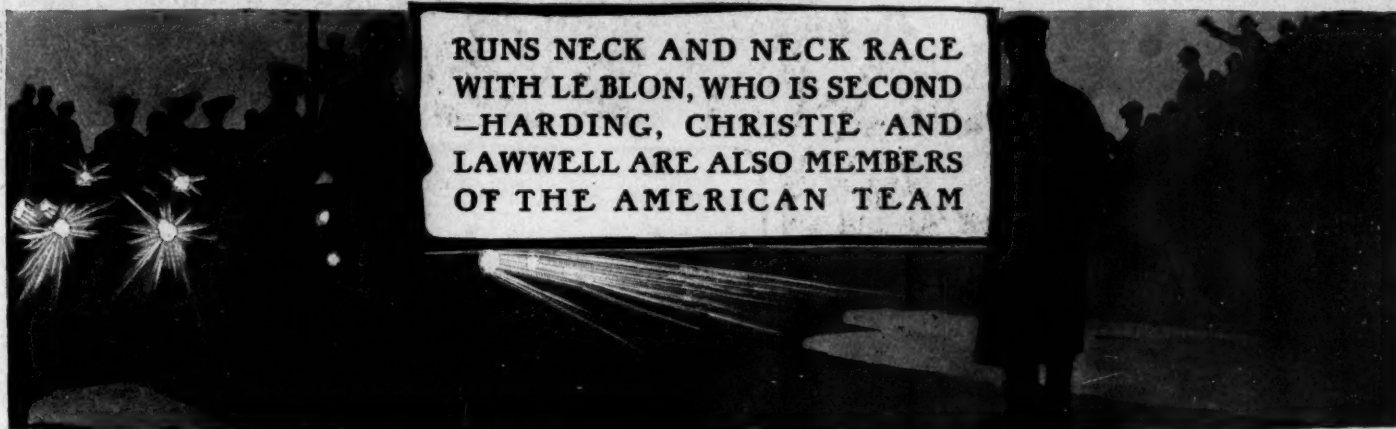
MOTOR AGE

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TRACY FIRST IN ELIMINATING TRIAL



RUNS NECK AND NECK RACE
WITH LE BLON, WHO IS SECOND
—HARDING, CHRISTIE AND
LAWWELL ARE ALSO MEMBERS
OF THE AMERICAN TEAM

GENERAL RESULTS OF THE AMERICAN ELIMINATING TRIAL FOR THE 1906 VANDERBILT CUP RACE

Finish	Driver	Car	H. P.	Entered By	Laps Made	Time H. M. S.	Av. Miles Per Hour	Fastest Lap
1	Joseph Tracy	Locomobile	90	S. T. Davis, Jr.	10	5:27:45	54.38	29:29%
2	Hubert Le Blon	Thomas	115	C. A. Coey	10	5:51:25	50.72	31:51
3	H. N. Harding	Haynes	55	Elwood Haynes	10	6:25:30	46.22	35:56
4	H. H. Lytle*	Pope-Toledo	120	Albert A. Pope	9	6:37:58	40.31	32:19
5	Walter Christie	Christie	50	Walter Christie	8	6:20:34%	37.47	33:05%
6	Frank Lawwell	Frayer-Miller	110	W. J. Miller	8	6:36:06	38.00	33:15
7	Gustave Callois	Thomas	115	E. R. Thomas	5	3:27:18%	42.35	33:04
8	E. H. Belden	Frayer-Miller	110	J. F. Stone	4	3:31:12%	35.43	34:03
9	M. Roberts	Thomas	115	H. S. Haupt	4	5:42:12	20.50	34:38
10	Ernest Keeler	Oldsmobile	40-45	F. L. Smith	1	2:14:01%	12.40	.....
11	Ralph Mongini	Matheson	60-65	C. A. Singer	.....	.....	.....	.....
12	Leo Frayer	Frayer-Miller	110	Oscar S. Lear	.....	.....	.....	.....

*Disqualified—Christie and Lawwell each move up one place.



JOE TRACY, WINNER, IN 90-HORSEPOWER LOCOMOBILE



HUBERT LE BLON, SECOND, IN 115-HORSEPOWER THOMAS

GREAT RACE AND THOROUGHLY AMERICAN



GLIMPSE AT THE GRAND STAND AT THE START OF THE RACE

NEW YORK, Sept. 23—Joe Tracy and the Locomobile proved an unbeatable man and car combination of conservatism and reliability in the race on Saturday ten times over the 29.7 miles' circuit in Nassau county, Long Island, winning in an impressive fashion first place on the American team for the Vanderbilt cup race on October 6. The only pilot and racer to dispute at all seriously Tracy's and the Locomobile's bid for the leadership were Hubert Le Blon, the French crack, with the Coey Thomas Flyer, a car built along the lines of the Brasier. Between the American and the Frenchman there was waged the most stubborn, ding-dong, see-saw battle in the whole history of automobile road racing before Uncle Sam's pair won out from the Jacques Francois outfit. From the third through the eighth round the international duelists alternated in the lead, seconds sometimes and a minute or two at the most separating them while the fierce struggle was in progress.

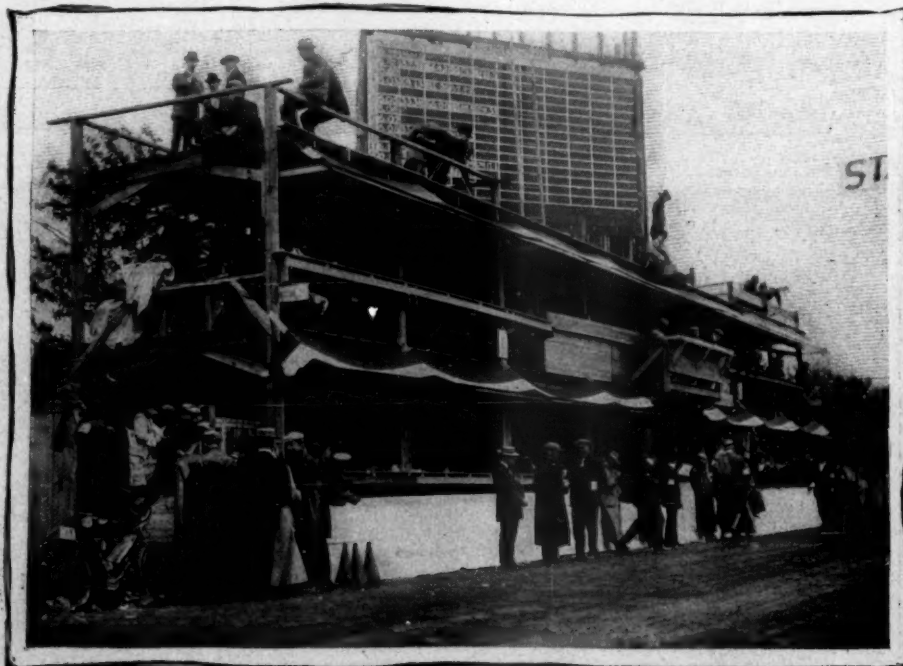
With a lead of 40 seconds at the close of the eighth round the gallant Gaul was halted by a treacherous tire. The American then shot by and ran away with the race, winning by 23 minutes 45 seconds in 5 hours 27 minutes 45 seconds, an average of 54.38 miles an hour. Winner Dingley's average last year was 56.22 miles.

A vast crowd, running up no doubt into the hundred thousands, which had watched the brave battle between the plucky pair for hours, cut loose its lungs and limbs and gave the victor a rousing Yankee welcome as he crossed the tape.

The general public would have it no other way than that it was a great American victory won by an American driver in an out-and-out American car. In Le Blon and the Thomas Flyer the laymen for the moment saw only a driver that had been imported and a car that had been designed abroad, and it little mattered to them that a great and liberal American sportsman had spent a fortune that little old U. S. might snatch, on October 6, the coveted cup from its French holders and stall off the invasion by Germany and Italy for its capture. The public is fickle always and at times unreasoning. A fort-

night hence these same patriots will be yelling themselves hoarse in encouragement to Le Blon, blessing E. R. Thomas for his sportsmanship, and bewailing perhaps the fact that Caillois and Roberts are not on hand with the other fast flying Thomases to redeem the failing fortunes of the day should the ill-luck of the racing game befall Tracy, now its popular idol and king pin.

In the fraternity of automobiledom, where the sportsmanship and well-meaning liberality of Mr. Thomas were thoroughly appreciated, there was sincere sympathy for him. Those looking at the situation with calmness and common sense were deeply disappointed at the mishaps which robbed the American team of the help of



THE PRESS STAND AND THE SCORE BOARD ON TOP



MR. AND MRS. WILLIAM K. VANDERBILT, JR., IN BOX IN THE GRAND STAND

at least one of the other two racers of the Thomas trio. The performance of the Le Blon car showed that the Thomas Flyers were of the stuff and speed to put up, along with the Locomobile, a worthy fight against the foreign invaders, not merely to be in the running, but at the front at the finish of the great race. For the Vanderbilt cup race the American team will have three out-and-out racers—the Locomobile, the Thomas and the Pope-Toledo—piloted by three drivers of experience and proven skill, Tracy, Le Blon and Lytle.

Two 60-horsepower touring cars, a Haynes and a Christie, both driven in masterly fashion, the former by H. N. Harding, a Britisher, who has been piloting English Daimlers with considerable suc-

cess in racing and hill-climbing contests, and the other by Walter Christie, famed as a designer and beach sprint racer. Harding's feat in pulling his car through to qualification was all the more meritorious from the fact that he had had but 2 or 3 days' acquaintance with the make and practice with the car. That the Christie should have shown enough speed and stamina to make the team was greatly to its credit, for it was an out-and-out stock car, which had been run but 140 miles and was stripped for the race when the big Christie racer, with its record of 35 seconds for a mile on At-

lantic City beach, was put out of the running by a collision with a telegraph pole early in the week. What hopes and intentions Mr. Christie has of having his big racer once more in commission by the time of the cup race cannot be told by the writer at this time. If it be not forthcoming then, to be excusably frank, America can hope for no more from two of its cars than that they will be running well at the finish and give the visitors and our own people, too, another demonstration of the speed and stability of the American touring car.

In the light of the results of the race, it is natural and reasonable that Tracy and the Locomobile should be most relied upon to make a creditable fight against the foreigners with as good a chance of winning the race as any of them. It has been proven beyond dispute that no country has a more consistent driver than Tracy, and the reliability of the Locomobile and its ability to get in the front division in any company have been as conclusively demonstrated by actual racing tests. It won yesterday. It was second in the eliminating race last year. In the Vanderbilt race of last year it was third, being beaten only by two French outfits and leaving behind four Italian, three French, three German and four American cars. On that occasion it averaged 57.45 miles an hour against the 61.55 of Hemery and the 60.67 of Heath. In yesterday's race the car ran practically



GROUP OF RACE OFFICIALS AT THE STARTING POINT, WAITING FOR A LATE-STARTING THOMAS

STORY OF THE ELIMINATING RACE, CAUSES FOR DEFEAT AND

DRIVER	Start	FIRST ROUND 29.71 MILES			SECOND ROUND 59.42 MILES					THIRD ROUND 89.13 MILES					FOURTH ROUND 118.84 MILES					Position
		Elapsed	Miles per Hour Elapsed	Position	Total Elapsed	Miles Per Hour Total Elapsed	Elapsed Second Round	Miles Per Hour Second Round	Position	Total Elapsed	Miles Per Hour Total Elapsed	Elapsed Third Round	Miles Per Hour Third Round	Position	Total Elapsed	Miles Per Hour Total Elapsed	Elapsed Fourth Round	Miles Per Hour Fourth Round		
1. Keeler.....	6:00	134:01	13.30	9																
2. Lytle.....	6:01	32:33	54.77	1	64:42	55.10	32:00	55.44	1	98:29	54.29	33:47	52.27	2	131:15	54.32	32:46	54.41		
3. Mongini.....	6:02																			
4. Callois.....	6:03	69:13	25.75	8	103:26	34.47	34:13	52.10	7	137:27	38.91	34:01	52.40	6	174:14	40.93	36:47	48.45		
6. LeBlon.....	6:05	38:34	53.09	3	66:00	54.03	32:26	54.96	2	98:06	54.83	32:08	56.45	1	129:55	55.15	31:46	56.10		
7. Roberts.....	6:06	236:40	7.58	10	271:27	13.13	34:38	52.70	9	306:05	17.47	34:38	51.46	9	342:12	20.84	36:06	49.37		
8. Frayer.....	6:07																			
9. Christie.....	6:08	33:06	58.87	2	78:27	45.44	45:21	39.30	5	113:38	47.09	35:06	50.77	5	167:30	42.54	53:56	33.03		
11. Lawwell.....	6:10	50:17	35.45	7	87:11	49.06	37:24	47.65	6	137:35	38.84	49:53	35.73	7	171:42	41.53	34:07	52.18		
12. Tracy.....	6:11	37:53	47.06	6	68:55	51.76	31:02	57.44	3	99:29	53.78	30:34	58.31	3	129:17	55.15	29:48	59.51		
14. Harding.....	6:12	36:14	49.20	5	72:28	49.19	36:14	40.19	4	110:48	48.26	38:20	46.40	4	148:44	47.94	37:56	46.99		
16. Belden.....	6:13	34:03	52.40	4	117:46	30.27	33:43	21.20	8	175:12	30.52	57:26	31.03	8	211:12	33.76	35:00	50.93		

without a hitch. Aside from his scheduled stops for gasoline and water, Tracy was halted to replace a pinched tire in the first round and later the gasoline feed choked up from scales fouling in the tank, causing a delay of 3 minutes. There are many to say that Tracy's car comes pretty near to being in appearance and construction the best racing machine ever built. Anyhow, a visit to the Locomobile camp, an inspection of the racer and an investigation of the whole plant and system of this racing outfit has never yet failed to send a visitor away filled with admiration and enthusiasm, of which the extravagant compliment quoted has more than once been the outcome. It must not be forgotten, either, that Tracy has in reserve a twin car in the event of an accident to the one he drove yesterday. The Locomobile people and Mr. Riker are certainly deserving of patriotic commendation for all they have and are doing to win for America the Vanderbilt cup.

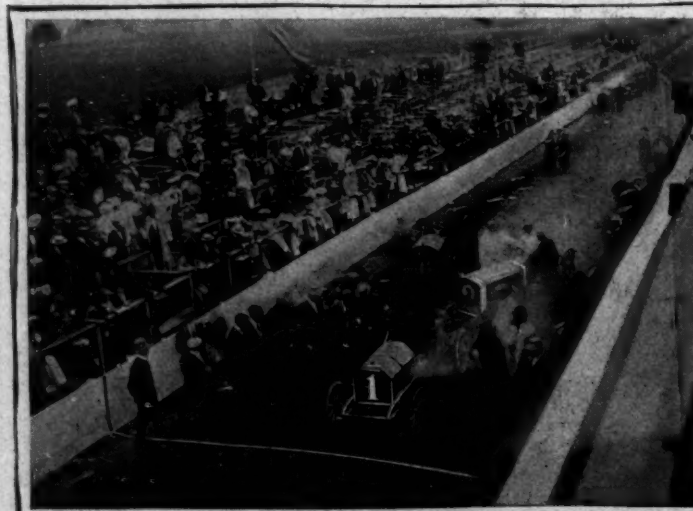
At 12:37:39 o'clock, when Harding finished in third place with the Haynes, there were still running Lytle and the Pope-Toledo, Christie and the Christie, Lawwell and the Frayer-Miller, and Roberts, who had repaired his Thomas after

over 3 hours of persevering work. Shortly after this the rain began to fall and word came over the phones that the spectators were crowding on the course. Referee Vanderbilt promptly ruled that further racing under these conditions was dangerous and called the race off. A meeting of the commission was at once held to discuss the selection of the other two members of the team. At that time Lytle had completed his ninth round in 6 hours 37 minutes 58 seconds, Christie his eighth lap in 6 hours 20 minutes 34 $\frac{1}{2}$ seconds, Lawwell the same distance in 6 hours 36 minutes 36 seconds, and Roberts his fourth circuit in 5 hours 42 minutes 12 seconds. Various points on the course were phoned to locate the position of the cars still running. After a quarter of an hour's discussion a vote was taken and the following named as the American team: Tracy, Locomobile; Le Blon, Thomas; Harding, Haynes; Lytle, Pope-Toledo; Christie, Christie. There was at once vehement protest on the part of the Frayer-Miller people, who claimed that Lawwell was running well and stood more than an even chance of beating out Christie, who led him 22 minutes .03% seconds on the eighth round. They even went so far as

to take their car over to the weighing-in stand to be weighed in. The referee demanded that their protest be submitted in writing.

Following the weighing out, W. J. Miller, owner of the Frayer-Miller, which was driven by Frank Lawwell, entered a formal protest in writing against Herbert Lytle being given a place on the team on the ground that at the Pope quarters, when three mechanics failed to crank the motor, a touring car took the Pope-Toledo in tow and towed it down the course to a point where it was lost sight of by the spectators at the Bull's Head turn. The Frayer-Miller people assert that the official checker and the motor cycle messenger at the turn in question saw the car towed and that they will produce other witnesses at the meeting of the commission at Garden City on Tuesday night, when the protest will be considered.

Twenty-three telephone stations at various points about the course made it impossible that anything of importance could happen anywhere on the circuit without the grandstand learning of it almost immediately. The telephone service was superb and the reports made by Announcer Peter Prunty were complete and satisfy-



FIRST THREE CARS AT THE TAPE READY FOR THE START



TRACY'S LOCOMOBILE AND HARDING'S HAYNES AT THE START

TIMES MADE ON EACH ROUND COMPLETELY TOLD IN TABULAR FORM

Position	FIFTH ROUND 148.65 MILES					SIXTH ROUND 178.26 MILES					SEVENTH ROUND 207.97 MILES					EIGHTH ROUND 237.68 MILES					NINTH ROUND 267.39 MILES					TENTH ROUND 297.1 MILES				
	Total Elapsed	Miles Per Hour Total Elapsed	Elapsed Fifth Round	Miles Per Hour Fifth Round	Position	Total Elapsed	Miles Per Hour Total Elapsed	Elapsed Sixth Round	Miles Per Hour Sixth Round	Position	Total Elapsed	Miles Per Hour Total Elapsed	Elapsed Seventh Round	Miles Per Hour Seventh Round	Position	Total Elapsed	Miles Per Hour Total Elapsed	Elapsed Eighth Round	Miles Per Hour Eighth Round	Position	Total Elapsed	Miles Per Hour Total Elapsed	Elapsed Ninth Round	Miles Per Hour Ninth Round	Position	Total Elapsed	Miles Per Hour Total Elapsed	Elapsed Tenth Round	Miles Per Hour Tenth Round	Position
163:38	54.35	32:43	54.49	3	248:46	43.00	74:47	23.84	4311:02	40.12	62:16	28.63	4358:31	39.77	47:29	37.54	4397:58	40.31	39:27	45.18	4	Running	at close	4						
307:18	43.00	33:04	53.51	5																										
102:06	55.20	32:11	55.39	1	194:38	55.13	32:32	54.81	2229:56	54.47	35:18	50.50	1201:39	54.69	31:43	56.18	1308:22	54.80	31:59	55.74	2351:25	53.40	43:00	41:41	2					
Running	at close																													
216:35	41.26	49:25	36.07	7	255:38	41.86	38:43	46.03	5349:39	36.31	88:00	20.26	5380:34	37.47	36:55	56.27	5	Running	at close											
208:23	42.77	36:41	48.59	6	258:19	41.41	49:56	35.45	6362:51	34.39	104:32	17.05	6386:06	36.01	33:15	53.61	6	Running	at close											
164:16	54.26	34:58	50.96	2	193:45	55.20	29:29	60.44	1231:12	53.97	37:26	47.61	2262:11	54.39	30:59	57.51	2298:36	54.64	31:27	56.68	1327:45	54.89	34:06	52:27	1					
164:03	48.26	35:56	49.61	4	225:07	47.51	40:27	44.06	3261:03	47.80	35:56	49.00	3300:56	47.39	39:53	45.07	3346:37	46.28	45:41	39.02	3385:39	46.22	39:02	45:20	3					

ing. The judging was conceded to be good.

The official stand arrangements were better than ever before. The timers, after the work of starting, retired to balcony above. The judges sat below. The telephone receivers flanked the timers on each side. This prevented the attention of the timing and reporting officials from being diverted. The track officials only, with the under-sheriff and his aides and the motor cycle couriers were the only ones allowed on the course proper.

Only one team in the race was equipped with removable rims—the Thomas. Only one of the three, Le Blon, required any tire replacement and he put on a new tire without changing the rim. All the contesting cars were fitted with Diamond tires. The Diamond Rubber Co. established eight repair stations, manned by fifty-two mechanics. A summary of the reported tire troubles requiring replacements is as follows: Tracy, a pinched tire; Le Blon, a puncture; Lytle, a puncture and a throw off; Haynes, a puncture by nails; the Frayer-Miller trio, two punctures; Christie, a throw off. The company claims that the tire of the Matheson did not burst but was thrown off when he skidded into the telegraph pole, and places

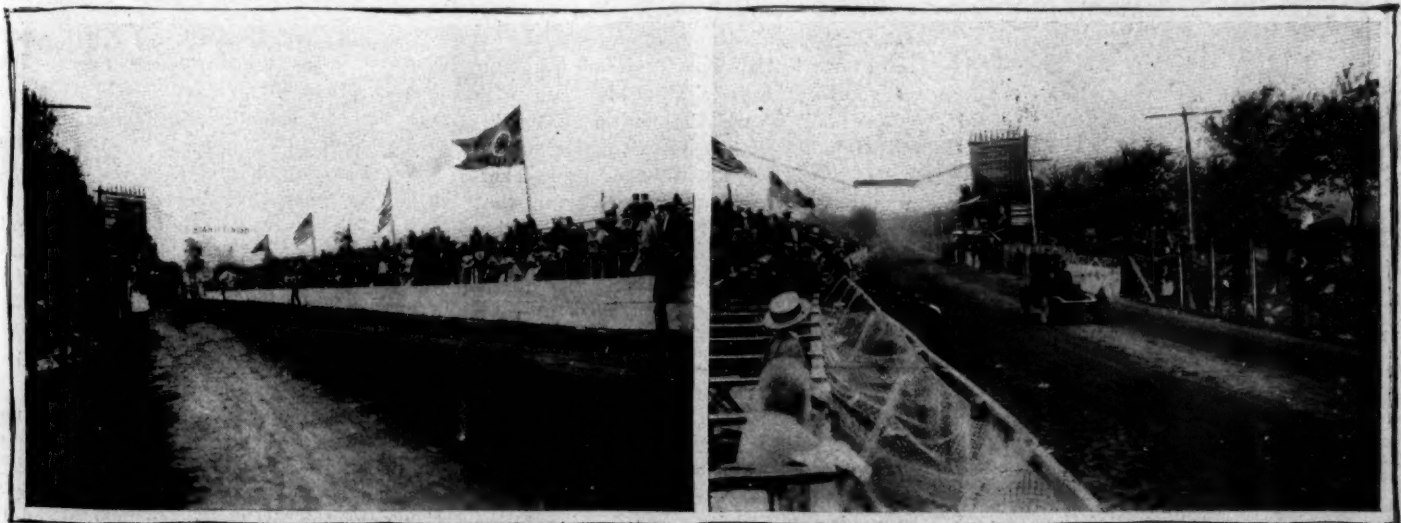
the record of its tubes for some 2,230 miles at racing speed at five punctures, three thrown shoes and one pinched tube. The first four cars of the five that qualified were fitted with shock absorbers, the construction of the fifth not admitting of this equipment. Of these the first three—Locomobile, Thomas and Haynes—had shock absorbers of the Truffault-Hartford standard type.

There were originally fifteen candidates entered for places on the American team. Three of these withdrew owing to disabling accidents in practice, leaving twelve starters. The hoodoo "13," which seemed imminent the day before, was escaped by the B. L. M. being withdrawn the night before. It had not been completed until the eleventh hour. A broken cylinder was among its reported disabilities. The Apperson, of which great things had been expected, had been put out of it early in the week by a collision with a telegraph pole. In a practice run Wally Owen's mechanic dropped a wrench in the machinery of the Maxwell, wrecking three cylinders.

As each qualifying car finished it was boarded by an official and taken to the official scales to be weighed in. Lytle was

phoned to come and bring along Christie, too. The Locomobile, with magneto, weighed 2,219 pounds, which was the limit with magneto; the Thomas, 2,218 pounds; the Pope-Toledo and Haynes, 2,195 pounds each; and the Christie, 1,895 pounds, including full supply tanks and a detachable rim.

A crowd estimated up in the hundred thousands saw the contest. Though this is but a guess, of course, it would seem to be not beyond the bounds of possibility. Anyhow, there were manifold more spectators of the American championship race this year than witnessed the trial for the selection of the 1905 American team. Last year the grandstand was hardly half-filled. This year, though its capacity had been nearly doubled, there were enough to pay \$50 for boxes and \$5 for seats to leave few vacant spots. The parking spaces at \$50 were also well filled. At either end of the stands was stretched high wire fencing. Behind this fence spectators had to take their places, only officials being allowed within the barriers. In short, the start and finish were on an avenue bounded on either side by a wire fence that meant safety for onlookers, as well as the racers.



LOOKING EAST

TWO VIEWS OF THE GRAND STAND

LOOKING WEST

STORY OF THE BIG RACE BY ROUNDS



A BREATHLESS MOMENT FOR THE CROWD, WHEN TRACY NEARLY WENT INTO BELDEN ON THE HAIRPIN TURN

NEW YORK, Sept. 23—The hour set for the start of the race for places on the American team in the Vanderbilt cup race, which was run yesterday in ten 29.7 miles circuits in Nassau county, Long Island, was 6 o'clock. An hour before that time it was light. An hour before that it was night, without a glimmer of coming dawn yet even then the grand and officials' stands, which marked the start and finish of the race at Westbury, were the Mecca of the population of the vast motoring city into which the desire to see the contest had transformed that part of Long Island embracing and contiguous to the course. Guests of the hotels, lodgers in taverns, roomers in farmhouses and campers by the roadside were all up and astir for 4 o'clock breakfasts and half an hour later

the exit courseward from roof and tent shelter had begun. The highways were choked with cars and wagons and streams of people poured toward Jericho pike from the incoming excursion trains. "Race alley" between the stands and wire fencing of the starting point was a confusion of blending lights, shouting chauffeurs, scrambling foot passengers and intrusive bicycles. With the coming of faintly illuminated dawn, however, Referee Vanderbilt and Chairman Thompson, who were on hand long before daylight, gave orders to the hayseed constabulary, which was out in legion for the annual graft, to clear the course. They did it quickly and well, be it said, and by 5 o'clock when the day was fairly bright, only the officials, scurrying reporters and photographers and the early-bird racing cars blocked the road.

"Willie K," the referee, was clad in a long-trousered suit of pearl-gray, and had a sweater thrown across his shoulder and head. "Wag," the starter, had shaken the brown leather Bowery-drama chauffeur of course, the inevitable blue cap with goggles set above the cap peak on his suit, which was the style hit of last year's contest for fairly quietly-checked knickerbockers and leather leggings. And that will be about all for the male fashion plate feature of the race. Who cares what any other fellow wore?

Immediately following the start the reports began to come in from the twenty-five phone stations along the course, telling not only of the passing of the cars but of the mishaps and other bits of news enroute. This Peter Prunty bellowed through the megaphone, and so there was hardly a moment when there was not something to see in a car flashing by or to listen to in the way of information of

the progress of the struggle. The approach of a car would be heralded by "car coming" from Prunty. All hands would rise in their seats with necks craned forward. There would be a flash of red



LYTLE, THE POPE DRIVER

flags repeated all down the road. The bugler would sound a call—z-z-z-z-z—the car had passed. If the driver were one of the leaders he would receive a cheer and a kerchief wave. When the race was half over there were longer waits between cars. Interest was then mainly confined to the coming and passing of Tracy and Le Blon, whose desperate duel for the lead furnished the chief interest of the race. During the waits the crowd sought to amuse itself, for the playing of the band was far too infrequent.

Young "Willie K." and Harry Payne Whitney sat in a box and sang "Waiting At the Church." Then an irreverent wag with no respect for wealth or social position gave the tip to Prunty, who shouted through the megaphone: "Will Mr. Harry



GETTING RETURNS BY TELEPHONE

Payne Whitney please sing 'Give Us a Drink, Bartender.' Uproarious applause and laughter followed this sally. Then volunteer vocal quartettes sprang into melody all over the grand and press stands, who rendered and tore popular songs to shreds without mercy.

Mongini, the ex-opera singer, was the first contestant to show up. Oh, yes! Beg pardon, but he looked just too handsome for anything in a brown knickerbocker suit. Then came Keeler, who was to start first, and little Lytle, to tell the truth and not to pun, who was to be Keeler's runner-up, followed him. The start was set for 6 o'clock. It was arranged to send them away at 1-minute in-



A GROUP OF POPES

tervals. Owen, Robertson and Dolbeau were counted the same as if they were present, so that 2 minutes each separated Caillois and LeBlon, Christie and Lawwell and Haynes and Belden. H. N. Harding, you must understand, was an eleventh-

hour substitute for John Haynes. He has won some repute as a pilot of the English Daimler in various racing and hill-climbing contests. So it was that 14 minutes elapsed between the starting of the first and the last of the twelve contestants.

The layout of the start was:

1—Keeler, Oldsmobile	6:00
2—Lytle, Pope-Toledo	6:01
3—Mongini, Matheson	6:02
4—Caillois, Thomas	6:03
6—LeBlon, Thomas	6:03
7—Roberts, Thomas	6:06
8—Frayer-Miller	6:07
9—Christie, Christie	6:08
11—Lowell, Frayer-Miller	6:10
12—Tracy, Locomobile	6:11
14—Harding, Haynes	6:12
16—Belden, Frayer-Miller	6:14

Five minutes before the hour set for the start Keeler drove his Oldsmobile to the line, where S. M. Butler, of the Touring Club of New York, stood watch in hand with F. J. Wagner, the starter, hard by. "Ten, 9, 8, 7, 6, 5, 4, 3, 2, 1," with pump-handle accompaniment shouted "Wag" in his ear and away went Keeler to a good start sharp at 6 o'clock, another race had begun. Lytle got off cleanly and then Mongini toed the scratch with his injured wrist bandaged.

Next was to have come Caillois. The second hand approached his starting time and passed it without his being ready, though the starter counted him off just the same. One hundred feet from the line he, LeBlon and a mechanic were on their stomachs under the Thomas adjusting a loose chain link. The French crack lost 25 seconds before he got under way. His team mate, LeBlon, who came next, was handicapped 26 seconds by inability to crank his motor. Roberts, the third Thomas flyer, also lost 9 seconds on the start. Christie was sent away to a rousing cheer, but the riot of applause Tracy raised when he started showed him the



TELEPHONE STATION ON THE COURSE

hottest kind of a favorite with the crowd.

The race had scarce begun when the first mishap occurred. At the very jump Roberts broke the rocker arm of his mechanical valve and stopped 200 yards from the tape, where he shifted to his automatic gear and continued around to the Thomas garage at Mineola. Here a new mechanical valve was put in. As Roberts started again he could not get out of his first gear and a new transmission had to be put in. He lost over 3 hours, and it was after 10 o'clock before he showed up at the end of his first lap. After that he managed to complete three more rounds in excellent time before the race was



THE HAIRPIN TURN WAS A DANGEROUS PLACE—LE BLON IS PICTURED MAKING THE TURN



TRACY GOING UP ONE OF THE GRADES ON BACK ROAD

came off. To be exact, he made his second lap in 34:38, his third in 34:38 and his finish in 36:07. This first lap was indeed full of misadventures fatal to most all of their victims. Lee Frayer broke a radius rod at Roslyn and was out of it for good; Mongini collided with a telegraph pole at Manhasset and went into the ditch by reason of a tire giving way. Though the car was not injured and Mongini wished to continue, C. A. Singer and Tom Cooper, when they arrived, said that so long a time had been lost already and would be lost in getting the car out of the ditch that it would be useless to resume the race. Keeler blew out a carbureter. It was a new one and the fittings admitted only of another of the same make to take its place. This was also blown out. Two hours after he had started he finished his initial trip. Then the loss of his second carbureter ended his racing career for the day. The great Caillois was also up against dire misfortune at the very jump off of the race. A pin loosened in his magneto, which cost him over half an hour to remedy and left him way down in eighth position at the close of the first round of the race, a hopeless handicap.

There was eager waiting for the first car that should heave in sight at the first bugle call and flag wave. It was Lytle. He had passed Keeler and had not been overtaken by either the much-touted Caillois or the bewhiskered LeBlon, who had started respectively 2 and 4 minutes behind him. In fact it was 5 minutes later before LeBlon flashed by, the second man to complete the initial circuit. Lytle had covered the course in 32 minutes 33 seconds. Better than that, when the round was over and the net times had been figured out the Pope-Toledo pilot was the actual leader in the race. Next to him came Christie in 33 minutes 5 seconds, which was a splendid showing for an out-and-out touring car fresh from stock. LeBlon was third in 33 minutes 34½ seconds. Tracy had taken 37 minutes 53 sec-

onds to negotiate the circuit and yet had climbed from tenth to sixth place in line despite his having had to stop to replace a tire which had gone wrong through pinching. Lytle got a hearty hand as he again flashed by the stand at the head of the procession. Once more he had the actual lead at 59.4 miles. Christie had had trouble with his clutch, had been passed by LeBlon, Tracy and Harding and had been forced back into fifth place. Belden had dropped from fifth to eighth place, it having taken him 83 minutes 43 seconds to make the round, owing to a long stop to adjust his wiring. Once more the Pope-Toledo led the procession in the third round. Less than 4 minutes later, however, LeBlon hustled by in pursuit. It was easily seen that it was nip and tuck between the two. A hasty calculation showed that LeBlon was in the actual lead. There was not long to wait for Tracy, who had already opened up a good gap on his pursuers. Seven minutes later the Locomobilist swept by. There was another scratching of pencils. LeBlon led Lytle by 21 seconds, and Tracy was just a minute behind the Pope-Toledoan. Now the stand woke up for fair. One of the

closest three-cornered races in the history of long-distance road racing was in progress. Though he had stopped to change a tire, Harding still held the fourth place with the Haynes. Caillois had gotten his car moving again fairly fast and had passed Lawwell. Roberts was moving all right and making a plucky uphill fight at the tail end of the survivors.

In the fourth round Tracy began to get busy in earnest and LeBlon also quickened his pace. Lytle was going at no mean rate, either. The three of them were racing in earnest now. A new lap record for the race, 29 minutes 48 seconds, by Tracy was the result. LeBlon scored 31 minutes 47 seconds and Lytle 32 minutes 46 seconds. Tracy was at last in the lead with a 40-seconds' margin over LeBlon, who led Lytle 1 minute 20 seconds. Harding held fourth place stubbornly, but Christie dropped further behind him through having to change his tires. Caillois was fast creeping up on the trio, which separated him from the leaders. It looked now as if he had a chance to break into the American quartette, though he was ¾ of an hour behind Tracy.

The half-way post of the race was now in sight and nine of the twelve contestants were still running and racing, a not bad showing of survivorship as road racing even in vaunted Europe goes. When Tracy reached his quarters at Bull's Head in the fifth round he deliberately sacrificed the lead he had so gallantly won in the previous circuit to take on gasoline and water as per schedule. Tracy was traveling on schedule. Lytle and LeBlon, however, kept at their ding-dong duel hammer and tongs, the Frenchman making the lap in 32 minutes 11 seconds and the American in 32 minutes 43 seconds. This gave LeBlon the lead once more with a margin of 1 minute 52½ seconds over Lytle. Despite his stop for supplies, Tracy finished the lap less than a minute behind Lytle. With British bulldog grit Harding had his teeth set in the fourth place and would not be shaken off. Caillois, who had been making a gallant stern

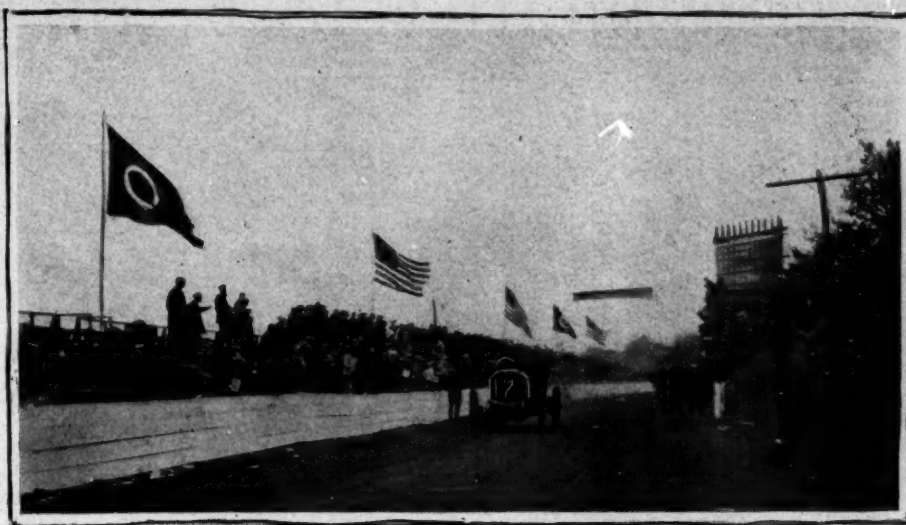


WINNER PASSING UNDER RAILROAD CROSSING

chase, had reached fifth place and was assured of making the team if he could hold it, as there seemed every likelihood he could. Belden broke a wheel at East Norwich and was out of the running for good. The race was now half over and six cars survived the trying ordeal.

The sixth lap saw another magnificent spurt by Tracy, which once more gave him a new record lap—29 minutes 29½ seconds, the fastest, by the way, of the race—and again put him in premier position. In this lap he had passed both LeBlon and Lytle and at its end led the Frenchman by less than a minute. Ill-luck came to Lytle, who had to stop to have two new tires put on. This let Harding by him and left him in a dangerous fix, closely pursued by Christie and Lawwell. This luckless lap also marked the exit of Caillois from the contest. The pin of his magneto, which had cost him so much loss to adjust in the first round, gave way and left him utterly out of the running. It was a poor reward Dame Fortune had handed out to him after his game uphill struggle, which the round before had landed him in the chosen five.

The contest had by the seventh round narrowed down to a duel to the death between the Frenchman and the American. The struggle between the two aroused intense though suppressed excitement. Each megaphone raising caused a silence in anticipation of some news of the two leaders and the cry of "car coming" brought the stands to their feet on the lookout for one or the other of them. In this sensational see-saw it was LeBlon's turn to lead. For the first time there had come a hitch in the clock-like running of the machinery of the Locomobile. Some scales had shaken down from the tank and clogged the gasoline feed. It took Poole, the mechanic, 3 minutes to clear it away. It gave LeBlon once more the lead with the narrow margin of 1 minute 16 seconds up his sleeve for emergencies. The Pope-Toledo radiator had been leaking badly for the last two rounds and Lytle fell still further behind the steady-going Harding,



CROWD MADLY CHEERS AS LOCOMOBILE PASSES THE STAND

though he still seemed to have a safe lead on Christie and Lawwell. Christie, by the way, had lost nearly an hour in tinkering with his steering gear.

Tracy was overhauling LeBlon almost inch by inch and foot by foot in the eighth lap, so little difference was there between the running of the Thomas and the Locomobile. The American made the eighth lap in 30 minutes 59 seconds and "His Whiskers de Paris" in 35 minutes 18 seconds. The last hope of the tribe of Thomas was but 32 seconds to the good with but two more laps to go—no wonder the normal rosy color left the rotund cheeks of the Buffalonian sportsman and that he bit his white mustache nervously. Lytle was limping along slowly and Lawwell was picking up on him and Christie fast. The Frayer-Miller made the lap in 33 minutes 11 seconds and was running strong and well.

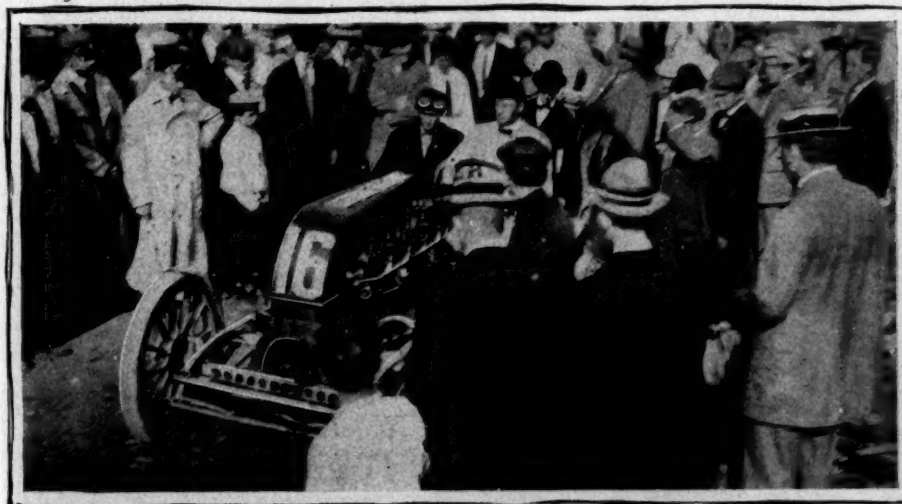
The ninth round had come and the home-stretch was almost in sight. The crucial point of the struggle had arrived. Speed, courage and luck were to decide the fate of the day. All three had a hand in it. With but 30 seconds separating them Tracy began to relax his

caution and for once bethink himself of first place and not mere qualification for his beautiful beloved steed of steel. Putting forth all his skill and power he strained every nerve to get all out of the Locomobile there was in it. Some say he was gaining, some say not; but a puncture brought the battle to an end. It occurred to LeBlon on the back stretch. He knew he was down and out so far as first place was concerned and limped leisurely to the nearest tire station on his rim. When Tracy showed in front at the end of the ninth lap the people knew LeBlon had only fallen by the wayside through misfortune, having nothing to do with the splendid mechanism of his car and gave the popular Tracy an ovation. Of course Tracy had slowed down a bit when he had passed LeBlon in difficulty, and even at that he made his lap in 31 minutes 25 seconds. LeBlon completed the round 15 minutes later.

Uproarious cheering greeted Tracy at the finish of the race. Men waved their hats and shouted themselves hoarse and women stood on chairs and waved their handkerchiefs in acclaiming the victor of the American championship race so well run and won by last year's conqueror of Germany, Italy and his numerous fellow-countrymen.

It was half an hour later before LeBlon loafed leisurely in. He, too, got a hearty hand for his splendid run, as did also Harding for what he had accomplished with a strange touring car.

There was a long wait for further American candidates to saunter in. Then the rain and news of spectators crowding the course came. The referee called the race off on account of danger. The commission met and picked the Locomobile, Thomas, Haynes, Pope-Toledo and Christie for the team. The qualifying quartette went to the weighing stands and the spectators to their homes. The eliminating trial of 1906 was over and had produced a team that looks as if it might produce a winner on October 6.



BELDEN IN FRAYER-MILLER AT THE START OF THE RACE

THE NIGHT BEFORE THE TRIAL RACE

HOTELS FILLED TO OVERFLOWING,
COTTAGES CROWDED AND TENTS
OCCUPIED AS THE FINAL RESORT



SPECTATORS' CARS ON SIDE ROAD NEAR THE HAIRPIN TURN, MOST INTERESTING SPOT ON THE COURSE

NEW YORK, Sept. 23—If the number which attended the eliminating trial marks the proportionate increase that will view the international contest, then it will not be a wild prophesy to set the number of spectators at the third annual Vanderbilt cup race at a half a million. To almost as great an extent as on the occasion of the big battle last year the general public flocked to the course. The capacity of the grandstand had been doubled, yet it was easily two-thirds full. Though the contest was but a trial heat the Garden City hotel and the wayside taverns were packed and it seemed as if every farm house had been pressed into lodging service. There were the same crowded ferryboats and the same unbroken procession of blazing acetylene lights all night on the roads leading to the course. The Garden City hotel was packed to the ceilings. Cots were placed in parlors, halls, billiard and even bath rooms. The scene about this racing headquarters the night before the race presented a strange conglomeration. Society and fashion were largely in evidence in the throngs of women in evening dress and men in dinner clothes. Threading their way among them were dust-covered men and women in automobile attire.

The dude, the sport, the belle and the athletic girl all fraternized in a confusion of contrasts. Outside the long avenue leading to the hotel was lined double-deep on both sides with automobiles, their dazzling lights ablaze. Motor cars were coming and going all night long.

It was a busy and high-rolling night at Krug's, too. Here there was no "society." The racing crowd had stormed and captured the place, the lights burned in the great Thomas garage and in the Haynes quarters beside it all night. Throngs peeked through the high-barred gates of the garages at the men at work. Around Fred Krug's oval bar thirsty ones stood all night clamoring, for the services of a quartette of barkeepers were inadequate to give with any degree of promptness. Down by the grandstand the New York Motor Club had pitched a tent and

set up some fifty cots. They cost but \$2.50 each, and being half the price for the humblest mattress in a farm house and very convenient to the start, were well patronized by the members and their friends. W. W. Burke, New York manager of the Electric Vehicle Co., had leased a cottage at Westbury for the E. V. Co. people, and hospitably permitted a whole bunch of newspaper men to butt in and share expenses. Every bed in "Chateau Columbia" was filled and mattresses covered pretty near every foot of floor space. And the gang had broiled chicken for breakfast! What do you think of that? But this was the good landlady's first try at Vanderbilt cup boarding house keeping. She'll probably reform when she gets wise.

The most interesting feature, though, of the night before camping out was the hundreds of automobiles that squatted

by the roadside at favorable viewpoints between the trees and the fences, which had been overlooked by the thrifty speculators and farmers for parking spaces at \$1 per front foot. Wrapped in robes and blankets and covered with waterproofs, their occupants snuggled in tonneaus and at least had a chance to sleep warmly. In the morning many camping outfits were produced and



PEOPLE CROWDING ON THE COURSE NEAR THE GRAND STAND

the smoke of the morning breakfast cooking arose to the dawn-streaked sky.

There were a number of relief and repair stations established on the course by some of the companies, while others had one or two places where their cars might obtain the services of mechanics in case of break-downs. The disparity in the methods of various companies was freely commented upon. The result proved that there was something in this. The Locomobile company had four small stations at various parts of the course and three of these were used by Tracy in circling the track. The Haynes company, on the other hand, had but two stations on the whole course and neither of these was used by Harding. The stations varied all the way from buildings in which were supplies of tools, gasoline and oil and water to touring cars drawn up alongside the course and containing mechanics and supplies.

POPE CAR DISQUALIFIED DRIVERS DRAW POSITIONS

New York, Sept. 26—Special telegram—Lytle and the Pope-Toledo have been disqualified and Lawwell and the Frayer-Miller substituted on the American team. This action was taken at a meeting of the Vanderbilt commission and the referees of the eliminating race held at the Garden City hotel last night. President Albert A. Pope, of the Pope Mfg. Co., and Herbert Lytle were the only witnesses examined. President Pope made a frank, manly statement, saying there was nothing to conceal. The facts as set forth by him and Lytle were that shortly after leaving a tire repair station a tire blew out, became loose and thrashing about twisted the speed levers. The car was taken into the Pope quarters, when it was repaired, the third speed clutch being wired in. A touring car hauled it out on the course again. It was the intention that the touring car should leave the course, but the road being narrow, and other racers being on the course, there was danger in turning the touring car, so the racer was towed further down the road to a broad and safe place. There was nothing for the commission to do but disqualify the car under racing rule No. 42, which forbids a car being started at the start or at any other point of the race otherwise than by its own power.

It was made known at the meeting that the 120-horsepower Mercedes entered by C. L. Charley, which was not purchased by W. K. Vanderbilt, Jr., had been sold to George McKesson Brown, of Boston, and would be driven in the race by



WATCHING THE RACE FROM PARKING SPACES

William Luetgen, who drove a Mercedes car in the 1904 contest.

Following the meeting the drawing for starting places in the big race took place. A. L. Riker drew first place for the United States; George Heath, second for France; Robert Graves, third for Germany, and Dr. Weilschott, fourth for Italy. Then the teams drew among themselves with the following resultant starting layout for October 6:

No.	Driver	Car	Team
1	Le Blon	Thomas	American
2	Heath	Panhard	French
3	Jenatzy	Mercedes	German
4	Lancia	Fiat	Italian
5	Lawwell	Frayer-Miller	American
6	Shepard	Hotchkiss	French
7	Luetgen	Mercedes	German
8	Nazzaro	Fiat	Italian
9	Tracy	Locomobile	American
10	Wagner	Darracq	French
11	Keene	Mercedes	German
12	Cagno	Itala	Italian
14	Harding	Haynes	American
15	Clement	Bayard	French
16	Weilschott	Fiat	Italian
17	Christie	Christie	American
18	Duray	De Dietrich	French
19	Febry	Itala	Italian

The hoodoo No. 13 was omitted. Chairman Thompson drew for Foxhall Keene, who is in Colorado. Lancia and Nazzaro will start fourth and eighth.

Early-morning practice was resumed today. The course was given over to the foreigners. Lancia, Nazzaro, Shepard and Jenatzy practiced in their racers. Lancia made a circuit in 32 minutes 20 seconds; Nazzaro in 32 minutes 40 seconds and Shepard in 38 minutes. Jenatzy did not start until 6:12 and had not completed a round when the practice time ended at 7 o'clock. Cagno and Fabry used stripped

touring cars. The former made laps in 60 minutes and 42 minutes and the latter a circuit in 41 minutes. Weilschott went a lap in a touring car in 52 minutes with two mechanics aboard.

All the boxes and reserved seats on the grand stand have been sold. Boxes and seats on a big stand just below the grand stand proper, may still be had.

Wagner is due to arrive at Montreal tomorrow and Albert Clement here on Friday.

Lawwell's Frayer-Miller has been sent to the factory to be overhauled and is expected back on the course on Saturday. Christie is working on his touring car, with which he says he can make a lap under 30 minutes. The Locomobile, Haynes and Thomas are at their quarters on the course.

Benjamin Briscoe declares the Maxwell concern is not out of the racing game and that it will take part in next year's Vanderbilt, possibly even if it is run in Europe. The eight and twelve-cylinder cars will be shown in beach racing in Florida next winter.



BACK OF THE GRAND STAND, WHICH WAS A BIG PARKING SPACE

STORY OF EACH OF THE CONTESTANTS



ONE OF DIAMOND TIRE CO.'S STATIONS, WITH REPAIR PLATFORM AT SIDE OF ROAD

NO. 1, OLDSMOBILE, KEELER

NEW YORK, Sept. 23—Keeler was early at the start and was prompt in getting to the tape, where he seemed to be a considerable favorite with the crowds, as they gazed at him through the gray, misty morning air. Keeler was comparatively cool-headed, but did not succeed in getting a very good start. He had a few seconds' difficulty in throwing in his gears. His career was short-lived. He had reached a point about half a mile west of Jericho when a tire went down. This obliged him to run around the Jericho turn and to the first tire station on the Oyster Bay road, where his tire was replaced in a comparatively short time. After passing the East Norwich turn his carbureter caught fire and, according to the driver, blew out. Keeler lost considerable time telephoning to the Olds garage at Westbury for another carbureter, and was subjected to quite a little delay in getting it. Eventually he fitted it to his car. He was able then to make fairly fast time over the tortuous back roads. He passed the grandstand 2 hours 14 minutes after the start. Of course, this made it apparent that he had very little chance and he drove somewhat more carefully beyond the grandstand. On the big stretch coming into Manhasset on the second lap the new carbureter, probably unsatisfactorily attached, caught fire again and blew out. This caused Keeler to retire

from the race, and he got off the course and had his car towed back to the Oldsmobile garage. He was considerably cut up over his experiences and refused to talk very much about the race.

NO. 2, POPE-TOLEDO, LYTLE

Lytile was rather nervous at the starting line, but his car seemed in good condition. He got a fair start and before he had passed out of sight of the stand he was going at a great rate. Lytile drove very hard for two rounds without trouble of any kind. He led for these two laps, covering the first round at about 54½ miles an hour, and the second round at slightly less than 55½ miles an hour. This, however, was his fastest lap. On the third round he dropped back to second place, his round being at 52¾ miles per hour. This was caused by tire trouble, with which he had little delay, however, at this time. On his fourth lap, Lytile was obliged to run a considerable distance on a flat tire. As he passed the stand the smell of burning rubber was distinctly perceptible and there were shakings of the head on the part of those who knew, as they made guesses on the condition of his rim after 7 or 8 miles of this system. When he had stopped for a tire near Bull's Head some precious time was lost in straightening out kinks in the rim, and Lytile paid for his bad judgment in running flat. This flat running probably

had something to do with shaking the radiator to pieces. On the fifth lap the radiator was leaking so badly that the car was losing at least 50 per cent of the water put into it and frequent stops for replenishments of water were necessary. Lytile dropped back until on the sixth lap he was running fourth, and there was a considerable loss of power from the heating of the engine when water could not be procured as speedily as it should have been. It was on the eighth lap that, it is asserted, Lytile had difficulty in starting his car and had to be towed. He had stopped over for another tire repair, which had been made, and the nervous little driver from Toledo, when he tried to crank the engine, found it too stiff to respond. After considerable effort, it was reported, a large red touring car took him in tow and towed him for about a quarter of a mile until he got the engine to going, and was able to proceed under his own power. There is some doubt about these assertions of towing, although the protest filed by the Frayer-Miller people claim in no equivocal terms that there is evidence that the Pope-Toledo was towed. Of course, this is a serious matter. At this writing, it cannot be proven. The racing board, it is understood, is engaged in a thorough inquiry into the situation, and may be expected to straighten the matter out. After passing the stand on the ninth lap, the last which Lytile made,

he had further trouble with his radiator, on the Jericho turnpike, and when the news was brought to him that the race had been called off, and that he was in the qualifying team, he said that he was surprised as he did not think that he had succeeded in qualifying. He made no further attempt to repair his car and was at once taken in tow and pulled to the scales, from which point he was again towed to his headquarters at Bull's Head.

NO. 3, MATHESON, MONGINI

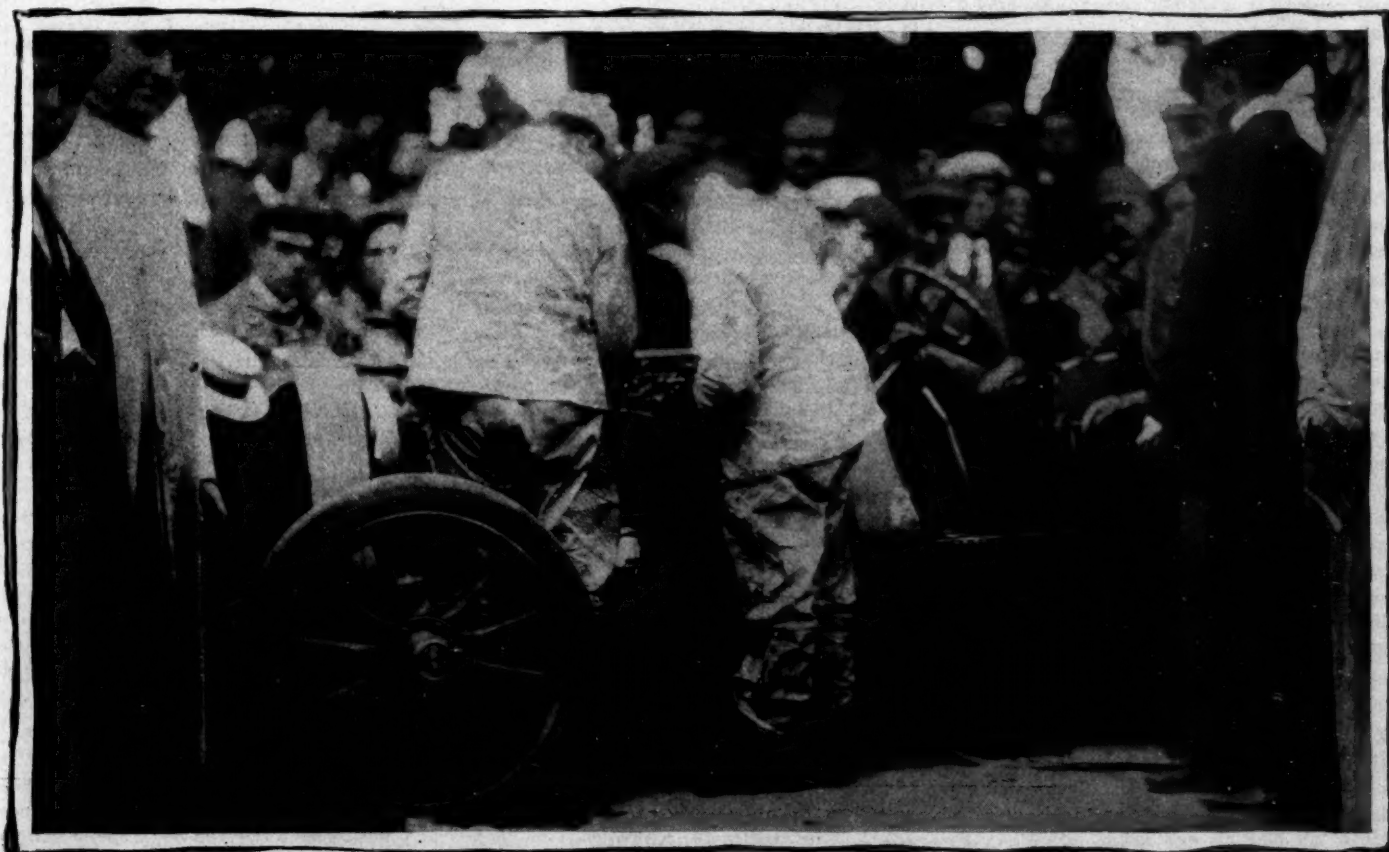
There can be no question but that Ralph Mongini did a rather foolhardy thing when he attempted to drive the Matheson car. Two days before he had his wrist sprained, and this had resulted in inflammation and much soreness and stiffness. On Friday, the wrist was bandaged and through Friday afternoon and the entire following night Mongini was having the injured member massaged each half-hour, and was taking other treatment. When he started, he admitted that the wrist was giving him some pain, though he felt that he would be perfectly capable of managing the car. Tom Cooper was anxious to drive, but it was thought best to allow Mongini to do what he could. Mongini made the best start of any of the drivers in the race. When the word was given his machine took hold at once and sped away in a manner which caused the grandstand to give vent to a loud, prolonged cheer. The car ran well up to the hairpin turn. Those who saw it on the road said that it was going very fast and

that it was being well driven by Mongini in spite of his sore wrist. He turned the hairpin at Old Westbury in fairly good shape and with more speed than most of the drivers used, but as he came out on the Roslyn road, the car skidded and it is thought that the rear tire was weakened at this point. At the foot of what is known as Spinney hill the rear tire went, throwing the car around almost crosswise of the course. Under ordinary conditions it is likely that Mongini would have straightened the machine out and would have been able to have proceeded to the next tire station. As it was, the weak hand lost its grip on the steering wheel and the car ran up a low bank and headed for one of the fateful telegraph poles which line the course at that point. Mongini succeeded in getting the car from the direct course and it struck the pole only a glancing blow. It was enough, however, to throw both driver and mechanic for a considerable distance. Mongini was thrown to the side of the car which, with power off, came to a stop almost at once. The mechanic was sent flying fully 20 feet, almost directly ahead, and when he fell was somewhat stunned.

NO. 4, THOMAS, CAILLOIS

All of the Thomas cars had bad starts. They were late in getting to the stand and when the time for Caillois to get away arrived, it found the driver and Le Blon and the two mechanics working upon the left rear brakes of the former's car. There also appeared to be a tightening of the

chain necessary at this point. After this was repaired, there was considerable difficulty experienced in cranking the Thomas, and Caillois was 25 seconds late in getting over the tape. Starter Wagner waved to him to go ahead and he drove immediately down the road, setting a fairly good pace. Caillois drove very fast for the greater part of the first round, but at Lakeville slowed down and was seen to be in trouble. Driving comparatively slowly to the headquarters of the Thomas cars at Mineola avenue and drawing into the headquarters, his magneto was reported to be working very badly. There was an attempt made to get this into shape but it took more time than Caillois had expected. The timing device had gone wrong and there was some little difficulty in locating the trouble. Finally it was agreed that the driver was to push on, and that a new magneto and timing device would be ready for him at the headquarters on signal. When he started a temporary pin was placed in the magneto, and this held for several laps. In spite of the fact that the first round had taken something more than an hour, Caillois started to regain his lost time. The next two laps were made in slightly more than 34 minutes. Caillois humored his car as much as possible in order to hold the temporary repairs in place. In the fourth round he had tire trouble and was delayed for a considerable time near Mineola. He then ran into the Thomas headquarters again and a new magneto was attached in remarkably quick time. This done, Caillois finished



LYTLE AND DINGLEY IN THE ACT OF MAKING AN ADJUSTMENT ON THE POPE-TOLEDO CAR

the lap and drove a fifth lap in the best time he had made during the race, 33 minutes 42 seconds. It was at the close of the fifth lap that, while he was on the East Norwich turnpike, Caillois suffered a second breakdown of the magneto which had been repaired. He gave up the race and did not attempt to compete further.

NO. 6, THOMAS, LE BLON

LeBlon drove, taking it all in all, one of the most brilliant of races. He was cooler at the start than Caillois or Roberts. He suffered a delay on account of the delay of his team-mate. By the time LeBlon had helped Caillois to get started, his own machine demanded his attention and the starter was preparing to call his time. It was hard work cranking the big racer and by the time LeBlon was in his seat and ready to go, he had lost 26 seconds, 1 second more than his leader. But once going, it was seen from the start that LeBlon was out to win. He is a tall, thin man with a flowing beard and presented a rather odd appearance as he drove with his facial adornment floating wildly in the air. He showed commendable judgment throughout and did not lose his temper to any appreciable extent, when he was subjected to an undesirable delay on the first round at a tire station. LeBlon said that at this tire station Diamond mechanics took 8 minutes to look at his detachable rim and figure out how it ought to be taken off. He asserted that he had to descend from the car and with the assistance of his mechanic attach the rim and replace it with his own hands, and in this he also lost 8 minutes, or 16 minutes in all. This made LeBlon late on the first round and placed him in third position from the very first. How well he regained this lost time is shown by the fact that in the second round he was in second position, in the third round in the first position, in the fourth round dropped back again to second, in the fifth round was again first, in the sixth round was second, and in the seventh and eighth rounds was leading. He dropped back to second in the ninth and tenth rounds when Tracy's pace began to tell. Altogether, the sawing of Tracy and LeBlon was the most exciting detail of the contest. LeBlon had more tire trouble in the fourth round, which was responsible for his losing the lead at that point. In the fifth round when he was racing freely again he went to the fore and in the sixth round had carbureter troubles which again took the lap from him. The float of the carbureter took fire at Lakeville and the driver had to stop and put it out with earth and sand from the side of the road. With his carbureter in shape again, LeBlon in the fifth and sixth laps once more took the lead and held it. When he was able to drive steadily he drove very fast. In the ninth lap LeBlon again had trouble with his carbureter, which caught fire just turning Krug's corner at Mineola. Some

of the by-standers ran with pieces of sacking and smothered the flame. With a few minutes' work LeBlon was again in the seat, speeding toward the finish line.

NO. 7, THOMAS, ROBERTS

Roberts, like the other Thomas cars, had delay at the start from hard work in cranking. He had come to the start with a hood on the machine but took it off and drove the car without it, leaving the hood at the stand. Roberts had the hardest kind of luck right from the start. He had not got away more than a quarter of a mile from the stand when he attempted to throw in his high gear and the sound was like the breaking of metal. A rocker arm was broken and it was also asserted that Roberts' high speed gear was stripped. This was denied, but it is certain that later Roberts had a great deal of difficulty in doing anything in the high speed. With the injury to the rocker arm the mechanical valves were put out of business and Roberts had to make a quick shift and a

any showing whatever and he took the car from the course and withdrew. He did not complete the first round and felt very badly over the accident which had put him out of the race. He hated to quit at this time but contented himself with standing by the roadside and pulling for Lawwell to get a place.

NO. 9, CHRISTIE, CHRISTIE

Christie ran a very successful race with his car. It is evident that the experience of last year had stood him under these circumstances for this year, for he had only a small degree of ignition and wire trouble in this race. This is the only race in which he has participated in which ignition troubles have caused the delay. Christie had some trouble and delay on the loss of his water-jackets, which are of copper, and he had as much trouble in this regard as was the case at Ormond last year. The low blue car was driven with considerable skill and the time made was creditable considering

CONTESTANTS IN VANDERBILT CUP RACE ON OCTOBER 6, 1906

FRANCE			
Driver	Car	H. P.	Entrant
Heath	Panhard	120	Maker
Duray	De Dietrich	120	Maker
Wagner	Darracq	100	Maker
Clement	Clement-Bayard	100	Maker
Shepard	Hotchkiss	130	E. F. Shepard
ITALY			
Lancia	Fiat	120	Maker
Nazzaro	Fiat	120	Maker
Wellschott	Fiat	120	Maker
Fabry	Itala	120	Maker
Cagno	Itala	120	Maker
GERMANY			
Jenatzy	Mercedes	120	Robert Graves
Keene	Mercedes	120	Foxhall Keene
W. Luetgen	Mercedes	120	C. L. Charley
UNITED STATES			
Tracy	Locomobile	90	S. T. Davis, Jr.
Le Blon	Thomas	115	C. A. Coey
Harding	Haynes	55	Elwood Haynes
Christie	Christie	50	Walter Christie
F. Lawwell	Frayer-Miller	110	W. J. Miller

quick repair to proceed with what was practically an automatic valve. He was only able to limp around to the Thomas headquarters at Mineola, where an entire new mechanical valve was set in. But he had continued difficulty with his speed gears. For the next four rounds which he made he was able to negotiate an average of somewhere about 34 minutes to the round. The breaking of Roberts' gasoline tank and transmission troubles finally put him out in the fifth round.

NO. 8, FRAYER-MILLER, FRAYER

Frayer, the inventor of the air-blast cooling system which was exploited on the three cars named after him, deserved more success than was his share in the race. He secured a fairly good start and ran at good speed around the eastern roads of the course but broke the radius rod and his clutch as he neared the hairpin road. An effort was made to make repairs, but Frayer found that this would take so long that it was impossible for him to make

the horsepower. His removeable rims showed to advantage. He asked for no help making changes and he and his mechanic removed one rim entire in 1 minute 23 seconds, replacing it and proceeding within that time. Later he made another entire change of rims on the car in 1 minute 42 seconds.

NO. 10, FRAYER-MILLER, LAWWELL

Lawwell did the most brilliant driving of the three Frayer-Miller drivers. He had troubles galore, but overcame them all with so much persistence that he came in for the plaudits of the crowds and was much complimented for the game fight which he put up. In addition to considerable tire trouble, Lawwell burned out the float of his carbureter and broke the feed pipe. These troubles were responsible for delays in the second and seventh rounds. In the latter round Lawwell took a bicycle and ran from Lakeville to Mineola, where he procured a small can of gasoline and a bottle. With the broken feed pipe and

float it was impossible to feed the carbureter by ordinary means and his mechanic was instructed to climb up in the engine and pour the gasoline from the can through a funnel into the carbureter. This he did for a considerable distance, but it was found that the can was too bulky, and so the bottle was called into play. It was a peculiar sight, not without some elements of humor, to see the mechanic pour the contents of the bottle into the carbureter as the car sped past the stand. It was not by any means a comfortable and satisfactory way to drive, but Lawwell kept going steadily until he was able to get a new carbureter to the scene of the race without to stop and replace it. From that time on, that is to say during the eighth lap, Lawwell ran well and his car showed great speed.

NO. 12, LOCOMOBILE, TRACY

Tracy was called a "daredevil" by the yellow papers. Nothing could have been less descriptive of the Welsh driver's

up ready to go to the tape, A. L. Riker leaned over and patted him on the back. Tracy was remarkably calm and self-possessed, and smiled back at the big constructor. "Good luck to you, Joe," said Riker. "Do just the same as you did last year." This was the final instruction and Tracy heeded it well. There was some nervousness shown by Riker during the fast laps made by Tracy, the former believing that the driver was doing too much speeding. But in the end, it was shown that Tracy knew just what he was doing all the time. In the sixth lap, he left the car at the Lakeville headquarters and went over it very carefully though speedily for defects or injuries. All he found was a small leak in the radiator and after satisfying himself that this was not a serious matter he pushed on again. So far as is known, he was the only driver who lived up to a schedule in this regard and carried out a prearranged schedule. Three times, besides this, Tracy was stopped in the race. Two of these stop-

running steadily throughout with practically no serious trouble. This was in line with the work of last year's eliminating candidate sent by the same firm. The Haynes car demonstrated that it was remarkably well put together and that it would stand a great deal of hard wear and tear. Harding has been driving foreign cars almost exclusively, in beach races during the last 2 years, and has never met with great success. When it was stated that he would drive the Haynes car, it was not believed that he would be able to do much with it. When it was known that he had never been in the seat of the racer until the day before the race, there was much pessimism freely expressed in many quarters. But Harding fooled all the wise ones. Habited in the white flowing robes of an Arab—the dress affected by Clifford Earp last winter at Ormond—Harding and his mechanic were picturesque figures at the starting tape. Harding made a good start and was away at the word like a shot. His first lap was made in 36 minutes 14 seconds, and this pace was the best of his race. His succeeding laps were slower but, on the whole, approached more nearly to an average than any of his competitors. The times from the second lap forward were as follows: 36:14½; 38:20; 37:56; 35:56; 40:27; 35:56; 39:53; 45:41; 39:02. It will be seen that Harding made two laps in identically the same time. His slow laps were the sixth, eighth, ninth and tenth, and on these he had tire troubles and a few minor engine troubles, but nothing of any serious moment. The even running of the Haynes, a stock car pure and simple, made a great hit with the army of spectators. The little machine skipped along merrily and held its own against sturdier rivals. Harding's work at the wheel was gilt-edged.

COMPARATIVE RATES OF SPEED IN BIG ROAD EVENTS

Event	Year	Driver	Car	Miles per hour
Ardennes circuit	1906....	Duray	De Dietrich	66.25
Florie cup	1905....	Raggio	Itala	64.8
Grand prix	1906....	Szisz	Renault	63.35
Ardennes circuit	1905....	Hemery	Darracq	62.34
Vanderbilt cup	1905....	Hemery	Darracq	61.49
Bennett cup	1904....	Thery	Brasler	60.
Vanderbilt eliminating	1905....	Dingley	Pope-Toledo	56.22
Vanderbilt eliminating	1906....	Tracy	Locomobile	54.3
Vanderbilt cup	1904....	Heath	Panhard	52.4
Bennett cup	1905....	Thery	Brasler	47.63

work. He was carefulness itself and only let the car out for a lap or two to demonstrate what could be done. Tracy's win was the result of care and prudence and foresight and the most painstaking survey of the route and constant study of his car and the conditions. He was the driver above all others who made his race good because of the car which he drove and the company behind it being thoroughly prepared for the encounter. It was a monumental exception to the general rule and the prognostications before the race were greatly in favor of Tracy. In fact, it had been reported that there had been a number of large bets at reasonable odds that he would finish first. As it was, however, Tracy had a close race with Le Blon for the first position. It was give and take between the two. But Tracy did not drive to win the race. His orders were merely to qualify, and it was with this in view that he drove so cautiously on curves, conserving every ounce of resource for the straightaways. As he lined

pages were for tire repairs, one being a puncture. There was not much time lost on these repairs. The third stop was when the gasoline was feeding badly and Tracy had to undo the coupling of the tank. He found that scales from the interior of the tank had been carried down in the narrowing portion of the feed pipe. It took little time to remedy this. Joseph was cheerful after the race. He was asked how much more speed he would be able to show during the final race, but refused to commit himself to any statement in the matter further than to assert that he could improve a good deal on Saturday's total elapsed time. Tracy practically knew that the race was won when he passed Le Blon on the ninth round, the latter having stopped and put on a tire.

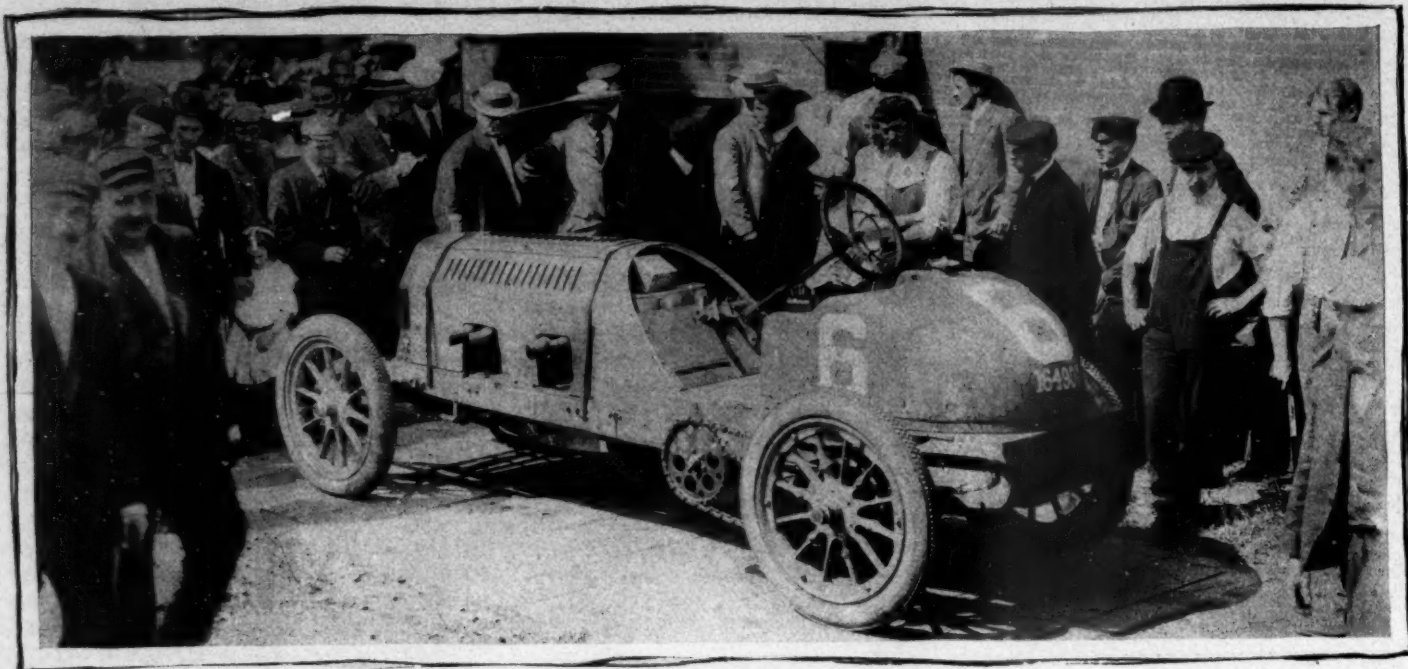
NO. 14, HAYNES, HARDING

Harding, who had been considered a doubtful quantity, drove one of the best races of the day. The Haynes car, too, showed up at a considerable advantage,

NO. 16, FRAYER-MILLER, BELDEN

Belden made a bad start. He was at the tape in due time and when the word was given tried to throw in his gears quickly, but was unable to do so. He lost fully 15 seconds before getting started and had the sympathy of all the stand. This was the more remarkable inasmuch as the trouble seemed to be in the gears and Belden is the inventor of the Belden transmission and ought to be expected to know all there is to be known about gears. When he did get away, however, he showed speed and made good time for a considerable distance. Before he reached the stand again, he was laid up with tire trouble and again with an ignition delay. His second round was very slow and, although the third was fast, the average rate of speed was very slow and Belden was well out of the running even before he came completely to grief with a collapsed wheel at Roslyn in the fifth lap. Belden's car did not seem to be running well at any time during the race except at the close of the third round.

WEIGHING THE CARS- MECHANICAL FEATURES



INTERESTED CROWD INSPECTS THE LEBLON THOMAS CAR ON THE SCALES

NEW YORK, Sept. 23—The official weighing station at the scales in Garden City proved its rightful claim to premier honors as the storm center of Friday, the day preceding the race. Although 10 o'clock was the official time set when contesting cars could present themselves for this necessary function forming the introduction to their race, the crowds were on hand for a couple of hours before this and both sides of the streets leading to the scales were packed with racing cars, semi-racing machines, touring cars and horse vehicles. The small weighing quadrangle, the back yard of the corner grocery store, was the fort to be stormed by the innumerable besiegers and bars and officials were alike unable to retain the hordes of photographers and others interested in the machines. Georges Dupuy, of the Automobile Club of France, officially representing that organization,

was first on hand, but his arrival was soon followed by that of S. A. Miles, manager of the National Association of Automobile Manufacturers and official representative of that association, and later by E. T. Birdsall, of the technical committee of the Automobile Club of America. Henry Ford, the other member of the committee, was not present. Promptly at 10 o'clock Keeler in his racerized Olds touring car, accompanied by his mechanic, appeared and was soon on the scales. Birdsall after a cursory inspection of the several parts of the machine went over it with punch and hammer officially stamping hubs, frame and other parts and when almost completing this part of the task was informed by Keeler that the wheels on the car were not those he intended to use but were at the Olds headquarters in New York city. This necessitated a postponement until the new wheels were procured and Keeler was allowed until midnight to make his final appearance for weighing in. Late in the evening when the car returned, official weight was 1,990 pounds, considerably beneath the limit of 2,204 pounds.

A wait of 1½ hours was the lot of the officials, for it was identically 11:35 before the second car, the Haynes, bearing its official number, 14, appeared at the scales. Driven by John Haynes it looked the part of a smart racing vehicle, a reputation that it was to establish for itself on the following day. When first run onto the scales with gasoline and water tanks full it tipped the beam at exactly 2,400 pounds, 196 pounds above the limit. This excess did not give Mr. Haynes a moment's anxiety, as he realized that with empty gasoline and water tanks the car would come well within the limit. Imme-

diately it was backed off the platform and all water drained out of the radiator and cylinders, the gasoline also drained off and the reserve batteries beneath the seat taken out, as well as the cushions and every other loose part permissible to remove. This done the car was once more pushed upon the scales only to discover that Weighman Miles, behind the grated bars, declared it still to be overweight, tipping the scales at 2,216 pounds. This excess provoked a sense of worry for a brief time until a solution appeared in removing the shock absorbers on the rear springs. In doing this the mechanic in his anxiety broke off the Truffault-Hartfords. But the trouble did not end here, for with these off the car was still a pound or so overweight and herein rose an argument over the accuracy of the scales. The car with the shock absorbers weighed 2,216 pounds and without them 2,205



STAMPING A HUB CAP



REMOVING SHOCK ABSORBERS

pounds, a difference of 11 pounds, and yet when the absorbers were weighed separately on the scales they showed a weight of but 8 pounds. This called for a balancing of the weighing scales, which was done after considerable confusion.

It was 12:03, noon, when the real excitement of the weigh-in commenced. LeBlon in Thomas No. 6 arrived, closely followed by one of the Frayer-Millers in tow of a touring car. The crowd was waiting for the Thomas, knowing that weighing in would afford an opportunity of a glimpse of the motor and other parts of these cars that had been kept so quiet during the work of construction. Without waiting, the Frenchman ran the big car under its own power onto the scales and was somewhat startled when Miles announced 2,350 pounds. After backing off nearly an hour was required for emptying the gasoline and water tanks, and to get the car well within weight the oiler had to be emptied, the oil taken out of the crankcase and a little drawn out of the gearcase. Even after this it was necessary to brush the dirt off the tires.

The story of these first three cars is the story of all the others. Not one presented itself, save the Christie, but what was overweight and a drawing off of gasoline or oil was needed. Tracy was compelled to take off the clock and the front fenders, as well as oil cans and other parts. The other two Thomas machines had a little trouble qualifying owing to their having on armor tread tires, which increased their weight considerably and which had not been counted upon when the cars were building. The Frayer-Millers, as a class, came best within the weight, and Lytle with his Pope had no trouble in weighing in at 2,125 pounds. Christie proved the lightweight. He was late in arriving. The official figures for the three Frayer-Miller cars were 2,203 pounds, 2,200 pounds and 2,208 pounds, including magneto, according to the scales.

The weighing of the cars and the stamping of several parts thereon was but one part of the ceremony. After this the committee had to be satisfied that the brakes were of sufficient strength to slide the wheels and that the car was provided with at least two speeds ahead and one reverse. In doing this the street in front of the scales was utilized, the drivers taking $\frac{1}{2}$ mile turns down the street between the closing walls of humanity and on the return slowing to 10 miles an hour and when passing the officials applying the brakes as required. All cars showed satisfactorily in this score, some of them tearing trenches 3 inches deep in the road, which was a little soft in places, among them the Locomobile. The other part of the test, that of the different speeds, consisted in starting on the low and changing to the intermediate or high and reversing, all of which occupied but a few minutes. The occasion of weighing in proved a general rallying point for all the motoring en-

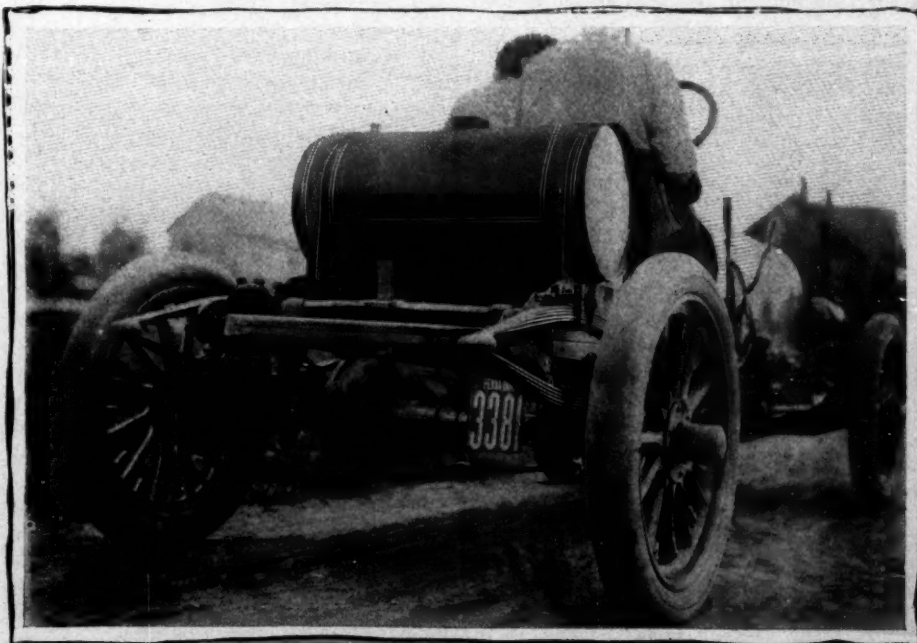


CLEANING THE TIRES

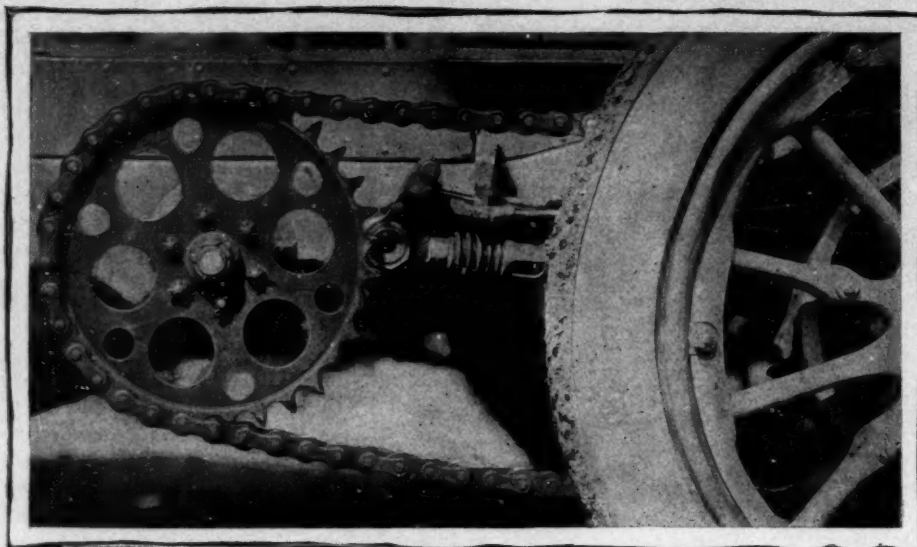
thusiasts throughout the whole afternoon.

"Pshaw! we have fast racing machines this year but they are of French construction, and what good does that do to America?" said a bystander as one of the American cars shot past the grandstand at a 76-mile clip with its engine running as rhythmically as any foreign machine ever turned over. A few other bystanders agreed but a few faithfuls threw down the gauntlet in defense of the present American builder. Of the sixteen cars built for the eliminating trial of last Saturday, ten were of racing type, built solely for the race, and five were of stock extraction with such changes as wheelbase, steering pillar, operating handles and body. Referring particularly to the ten racers, the three Frayer-Miller machines were best entitled to be called home-designed machines, with their air-cooled motors and Belden transmissions. Of the other machines, two Locomobiles, three Thomases, one Pope-Toledo, one Apperson and one

Maxwell, all savor more or less of foreign build. This is much to their credit. The motor car in its present stage of perfect is not the outcome of any one country, but is an evolution in which a score of nations have had their hands. Back in the 80's Germany gave us the high-speed combustion engine, and immediately France, England, Italy, Austria, Holland, Belgium and Switzerland took the motor and started using it and making changes and improvements where they saw fit. Incidentally, America, too, took the motor and worked it over. Did our car users stand with upraised hands and declare in holy horror that such was bad for the American industry? When England gave us the pneumatic tire years ago did other nations refuse to use it? When Germany brought out the selective transmission, were we or any other nation accused of inconsistency in adopting it? When foreign builders perfected the magneto we did not refuse it. Go still further: Our American builders, when they started the manufacturing game, copied foreign machines from radiator to back axle. They did not say so. Sometimes when you asked them if they did, a beating-around-the-bush denial followed. Last year one of the best known American builders brought out a new model and it was an exact duplicate, in every detail, of a foreign car, but as it was not labeled such the American user accepted it as a home-designed machine. To continue: There are scores of American cars modeled exactly after foreign ones, and not a word is said about it; but because some of the cars contesting in the eliminating trials savored generally of the French and because French workmen labored in constructing them a few of the trade jealousies proclaimed from the mountain tops that the race was not to home-made machines but that French cars were running. We do not criticise our physi-



TORSION ROD AND REAR SPRING CONSTRUCTION ON THE HAYNES



A SHOCK ABSORBER IS USED IN THE RADIUS RODS OF THE THOMAS CARS

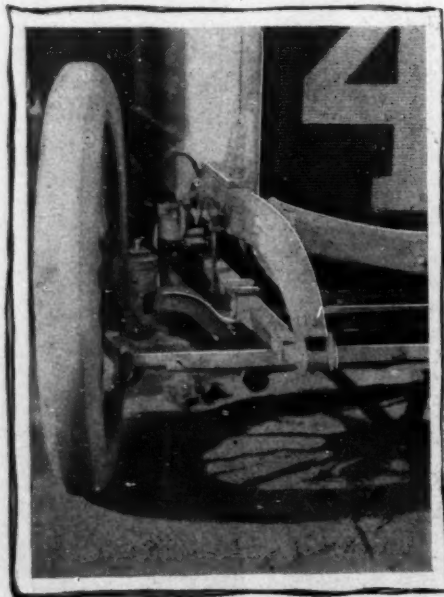
cians who go abroad to take post-graduate courses in London hospitals; neither do we stand aghast at those who seek the cloister halls of Germany in the gaining of higher musical education; our navy is not held up to scorn for fashioning ships after foreign build, and in a score of other pursuits our makers are not ridiculed for copying. It is not all on our side of the fence. In the motor game the multiple disk clutch—which began its existence in America—is being used largely in France; our air-cooled motor is now being introduced abroad; so is our opposed-cylinder car; so are many other features—yet we do not cry "Shame!" at those who have copied us.

In the winning Locomobile, which merits premier attention, appears evidences on every side of expert workmanship. It was the prime favorite before, and during, the race, and those who had seen its "inwards" declared it to be built like a gun from tip to tip. It is not an exact Locomobile touring car accentuated in motor

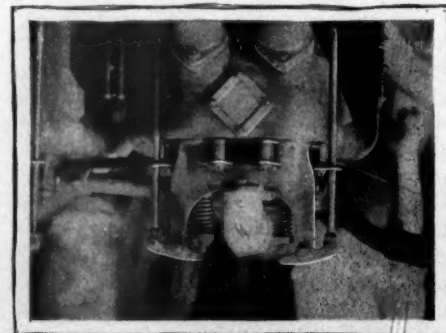
and running gear. To begin, its 90-horsepower motor has a bore of $7\frac{1}{4}$ inches, whereas the stroke is but 6 inches in length. This using of a short stroke permits of much higher motor speed and the great cylinder diameter gives the cubical space and consequently the power. In the grand prix race in France this year every one of the contesting cars, with one exception, had the bore greatly in excess of the stroke, and in the exception these two measurements were alike. To get increased cooling for a motor that must work at its limit for at least 6 hours copper water-jackets have been used with one large jacket enclosing a pair of cylinders. In order to use such for the cylinder walls and use a cast jacketed head, the cast jackets were made with the cylinder casting and then sawed out, after which the copper walls were silver soldered in position. This construction has in racing design the double advantage of decreasing weight and increasing water capacity. A still further step in racing build is met in placing the intake valves in the cylinder heads and operating them by rocker arms, while the exhausts are retained in the bottom of ports at the opposite side of the cylinders. So locating the intakes gives a motor of less weight, gives a more direct path for the explosive mixture to the space directly above the piston, gives less cylinder space exposed to the heat of explosion and permits of a faster speed motor. Foreign machines have used this construction considerably of late; in fact, the Darracq that made the 2 miles in $58\frac{1}{2}$ seconds at Florida had valves so placed. To show that this tendency is having its effect on touring car build the users have but to look at the many makes now employing valves in the head, and it looks very much as if that renowned English expert of gas engine build, Dugald Clerk, is soon to see the realization of his dream of a spherically-topped combustion chamber with both intake and exhaust valves in its

arched top and the spark plug carried practically at the center of the combustion space. The using of a very large exhaust pipe beside the motor and fluting it for cooling purposes is commendable, as is the using of large intake pipes from the carburetor and carrying the carburetor well up on the sides of the cylinder. To insure against any possible mixture condensation in the pipes, the latter are hugged across the cylinder head to where they unite with the valve cages. This car still remains the sole example of low tension make-and-break ignition, with current supplied by a magneto designed by A. L. Riker, of the company. Abroad make-and-break has had a large following in the racing field, Mercedes, Fiat, Itala, de Dietrich, Darracq, Brasier and other makers using it. In the clutch an innovation exists in interlocking pins. In the cone part are six pins and in the female flywheel portion thirty-six holes for receiving these pins. Once the six pins enter the most convenient six holes the drive is perfectly positive. The spring is of sufficient strength to make disengagement rapid. A construction of this nature allows of quick picking up after turns and guards against any loss on the straightaways. The transmission has but three speeds ahead and, new in Locomobile practice, it, as well as the jackshaft and road wheels, is carried on ball bearings, of the Hess-Bright type. The running brake is carried on the jackshaft, as in all three of the new Thomas machines, and the emergency ones are on the back hubs. This car had before the race every appearance of a completed, well-tuned racer. On the sloping dash appeared every accessory for oiling and other parts, and when it came to weighing in there was no wild scramble to spend most of the time in fixing up and getting in readiness for the brake and gear test. Everything was in gilt-edge condition—a state of perfection only noticeable in this machine but which will beyond doubt be in evidence when American cars muster for the eliminating races of 1907.

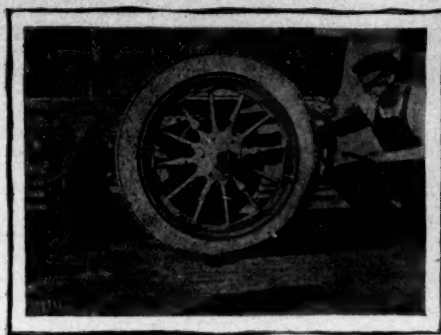
Next to the Locomobile all interest was centered in the three Thomas cars that were late in reaching the course, owing to not being completed in time. Their headquarters, night and day previous to the race, was a veritable machine shop, with



THOMAS STEERING KNUCKLES



THOMAS INLET VALVE ACTION



THOMAS DETACHABLE RIM

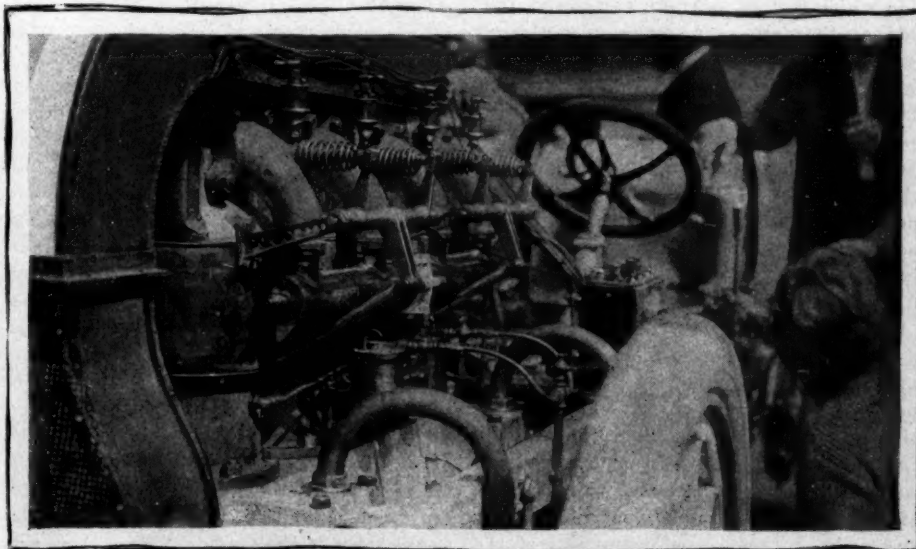
workmen hurrying over every part of the machines. Rumors had it that these machines were Brasier design from front to back and that Caillois, whom E. R. Thomas had assist in the design of them, had fashioned everything after Thery's cars. But a glance is needed to dispel this, as selective gearsets, intake valves in the heads and a few other points tell how mistaken such critics are. These cars are very unlike anything Thomas has previously placed on the touring car market, but the 1907 Flyer will incorporate in its design many of the principles followed in the trio of racers. The three are identical in every way, except perhaps in the use of detachable rims on the rear wheels. In the motors, cylinders are cast in pairs with integral waterjackets. The bore and stroke, $7\frac{1}{4}$ and 6 inches respectively, are the same as that of the Locomobile, yet while the Locomobile has a rating of 90 horsepower the Thomas machines are given a 115 horsepower figure. Placing the intake valves in the cylinder head and carrying the exhaust in the bottom of side ports is a point of great similarity with the Locomobile, or vice versa. In operating the intakes, as shown in an accompanying illustration, the valve cage sits directly on the cylinder head and has a support for the rocker arm which lies in a direction lengthwise of the cylinder and is pivoted at one end to the top end of the lifting rod, which rises past the side of the port carrying the exhaust valves. One camshaft works both sets of valves. In supplying mixture a special design of Thomas, water-jacketed carbureter is adopted, and it is carried excessively low down beneath the engine base on the right side with a long Y piping to deliver the mixture, these pipes crossing over the cylinder heads to the valve cages. Such points as separate float chamber towards the front and horizontal cylindrical mixing chamber to the rear of it, as well as auxiliary, spring-controlled air valve, are its conspicuous merits. The throttle has its control directly from the steering wheel, on which is a flat spring lever equal in length to the radius of the wheel and carrying on its end a medium-sized ball which can be reached by one finger without taking the hand off the steering wheel. The gasoline tanks constitute a real racy part of the machines and their capacity of 55 gallons

is in excess of that of any other make of car in the race. The driver and his mechanic sit in seats formed in the front of the tank, and the design is so careful that the gasoline fills the space between the two and also fills what would be the sides and ends of the seat. In connection with the motor, one of the notable departures in Thomas build is the use of a high tension magneto for furnishing the electric current, and good judgment is shown in gear driving this important member. In starting, the spark is automatically retarded at the same time that the compression is relieved, but once the compression cams are taken out of service the timing takes its standard position and is never afterwards altered. The relief cams are in two parts and are lifted into action through the medium of a rod within the camshaft. This rod, when moved endwise, lifts the cams and simultaneously changes the lead of the magneto armature. Nothing more startling is seen in the cooling of the cylinders than the dispensing with a fan in rear of the radiators, which, of the honeycomb type, are made very large and so mounted as to be a good inch in rear of the front axle. In eliminating the fan the excuse advanced is that a racing car traveling at very high speeds creates a draft equal if not greater than that produced by a rotating fan. Fan spokes in the flywheels are not used. Of the very few castings in the cars that of the crankcase attracts by its stout build. On the base are two deep webs running from front to rear and in conjunction are several cross webs. Rather than use short, curved arms to take the case support on the frame pieces, the casting has large, triangular-shaped web arms that repose on the top of the frame pieces. The water pump is of rotary build; the oiler, with its seven feeds, is supported crosswise above the flywheel where the dash ordinarily is, there not being a closed dash. The clutch, a very large diameter cone one, with a leather facing, is provided with a series of eight locking fingers. In the selective



FRAYER-MILLER STRUT ROD

transmission gear the use of a separate reverse lever figures. It is a mere handle extending through the footboard at the left and moves in a slot running crosswise of the car, the intention being for the mechanic operating it, leaving the forward speed lever only for the driver. The Olds and one or two other cars utilize the scheme of having the mechanic take care of some of the less frequent operating parts. But leaving the motor, clutch, gearset, with their accompanying parts, the running gears of these machines show the careful balancing of all parts so as to make a machine not exceeding the limit of 2,204 pounds in weight and yet with all parts equally balanced. The axles, of I-beam section, are smaller than those seen in many touring cars, but of sufficient strength, as shown by the race. The back axle is dropped in Mercedes fashion inside the spring seatings and the ends of the front axles carry integral eyeholes, or vertical hubs. The end of the wheel spindle has a jaw for receiving the eyehole of the



FRAYER-MILLER INLET VALVE ACTION AND DOUBLE FLOAT CARBURETER

COMPLETE MECHANICAL DETAILS OF THE TWELVE CARS STARTING

Race No.	Car	Entrant	Club	Made by	Owner	Driver	Mechanic	Weight Lbs.	H. P. Rated	Bore and Stroke	Ignition	Clutch
1	Oldsmobile	F. L. Smith	Automobile Club of America	Olds Motor Works, Lansing, Mich.	Olds Motor Works	Ernest Keeler	Harry A. Miller	1990	40-45	4½x4½	Batteries and magneto	Cone
2	Pope-Toledo	Albert A. Pope	Automobile Club of America	Pope Motor Car Co., Toledo, O.	Pope Motor Car Co.	Herbert H. Lytle	Bert Dingley	2195	120	7½x6½	High ten. magneto	Multiple disk
3	Matheson	C. A. Singer	Automobile Club of America	Matheson Motor Car Co., Reading, Pa.	Matheson Motor Car Co.	Ralph Mongini	John Green	2198	60-65	6 x 6	High ten. magneto	Multiple disk
4	Thomas	E. R. Thomas	Automobile Club of Buffalo	E. R. Thomas Motor Co., Buffalo, N. Y.	E. R. Thomas Motor Co.	Gustave Caillois	Marcel Pouré	2218 Magneto	115	7½x6	High ten. magneto	Cone
5	Thomas	C. A. Coey	Chicago Automobile Club	E. R. Thomas Motor Co., Buffalo, N. Y.	Entrant	Hubert LeBlon	Marius Amiel	2215 Magneto	115	7½x6	High ten. Magneto	Cone
7	Thomas	Harry Hought	Automobile Club of Buffalo	E. R. Thomas Motor Co., Buffalo, N. Y.	Entrant	Montague Roberts	Gus Anderson	2218 Magneto	115	7½x6	High ten. magneto	Cone
8	Frayer-Miller	J. F. Stone	Columbus Automobile Club	Oscar Lear Automobile Co., Columbus, O.	Oscar Lear Automobile Co.	Lee A. Frayer	C. M. Foss	2192	110	7½x6	High ten. magneto	Expanding band
9	Christie	Walter Christie	Automobile Club of America	Christie Iron Wks, New York City	Entrant	Walter Christie	Louis Strange	1780	50	5½x7	Batteries	Cone
11	Frayer-Miller	W. J. Miller	Columbus Automobile Club	Oscar Lear Automobile Co., Columbus, O.	Oscar Lear Automobile Co.	Frank Lawwell	C. E. Eckhard	2203	110	7½x6	High ten. magneto	Expanding band
12	Locomobile	S. T. Davis, Jr.	Automobile Club of America	Locomobile Co. of America, Bridgeport, Conn.	Locomobile Co. of America	Joseph Tracy	Al Poole	2202	90	7½x6	High ten. magneto	Cone with pins
14	Haynes	Elwood Haynes	Chicago Automobile Club	Haynes Automobile Co., Kokomo, Ind.	Haynes Automobile Co.	H. N. Harding	William Clark	2216 Magneto	55	5½x6	Batteries and magneto	Clamp'g band
16	Frayer-Miller	Oscar Lear	Columbus Automobile Club	Oscar Lear Automobile Co., Columbus, O.	Oscar Lear Automobile Co.	C. H. Belden	Daniel Crosby	2200	110	7½x6	High ten. magneto	Expanding band

All cars four cylinders.

All cars used wooden wheels, except Christie, which had bronze wheels.

axle, a vertical pin securing both together. To prevent the entrance of dust a sheet metal shield is carried. In the radius rods are shock absorbers at the forward end, a large coil spring serving as the absorbing member. Chrome nickel steel, an oft-repeated story in these cars, is used in these radius rods. On the rear wheels are detachable rims made by the Diamond Rubber Co. The rim resembles French design as used in the grand prix race, the rim having six lugs on the inside which rest in as many recesses in the side of the felloe. A series of six nuts complete the tale. To provide for the extra strain placed upon the felloe, at these six points, a reinforcement appears in making the felloe much heavier between the spokes where the rim is attached. The wheelbase of all three measures 112½ inches, tread 56 inches, tires 34 by 4 inches in front and 34 by 4½ inches in rear.

In the race the gaining of third place by a 60-horsepower Haynes car was the topic of general interest in so much as this car ran with great regularity if not high speed. The first lap of 29.7 miles in 36 minutes and 14 seconds, and the second lap in 36 minutes 14½ seconds, startled not a few of the enthusiasts, which interest was increased by many more laps being made without the difference of 1 minute. The motor, with a bore of 5¼ inches and stroke of 6 inches, shows at

once to be of touring car proportions with the stroke longer than the bore and the carrying of both set of valves in the bottom of side ports is a further touring car argument. To give igniting current a Remy high tension magneto was in place and as reserve beneath the seats were storage cells in case the magneto failed in its duty. A difference from present Haynes cars is the use of a selective transmission, but the shaft drive with roller pinion drive at the differential remains, as do full elliptic springs behind but semi-elliptics in front. In lubricating this was one car not fitted with the hand pump for shooting oil into the crankcase, the motor depending entirely on a pressure feed oiler to supply all of its needs, which it did to apparent satisfaction but yet most of the observers argued that with a hand pump to give the crankcase more oil, a little faster time could have been made. Undoubtedly a hand pump would have been a benefit in the last two rounds when after the radiator cap was lost the engine could have used more oil. When it finished the last lap it was steaming merrily, but running beautifully nevertheless. To relieve the back axle of too much pushing strain a pair of strut rods without adjustment features are used extending from the back axle to the sides of the frame. The center part of the frame between the strut rod attachment and the rear end of the front

spring is trussed. A torsion rod is used in conjunction with the propellershaft. In the running gear the present method of filling the channel side pieces of the frame with wood continues, the front axle in I-beam section carries Elliot types of jaws, and perforating to reduce weight is only found in the seats and one other place. The car came just within the weight limit.

Of the other two cars getting places on the team the Frayer-Miller and Christie can be termed nothing but American affairs and both while bristling with innovations cannot be termed freaks as their performances show them to be capable of speed and endurance and their construction is such that can be used very easily in touring car build. The three Frayer-Millers were conspicuous primarily by their size and secondarily because of their peculiar method of air-cooling and the use of the Belden transmission carried in the differential casing on the back axle. Added to this was the novelty of left-hand control on both, the fact that all three ran without bonnets and the suspension of the footboard well beneath the frame pieces so that the bottoms of the seats are level with the top of the frame. It is singular that these motors should have as their bore and stroke 7¼ and 6 inches respectively, figures the same as in the Thomas and Locomobile, and that they should be rated at 110 horsepower, a

IN THE ELIMINATING TRIAL FOR THE VANDERBILT CUP RACE

Drive	Speeds	Capacities by Gallons			Wheel Base	Tread	Tires	Removable Rims	Bearings	Carburetor	Cooling	Radiator	Valves	Brakes	Frame
		Water	Gas	Oil											
Shaft	3	5	25	3	100½	55	32x4 32x4	No	Timken roller	Kingston	Integral jackets	Cellular	Mechanical on same side	Expanding in hub drums, foot brake on transmission	Pressed steel
Side chain	4	6	25	6	104	56	34x4 34x4	No	Hess-Bright	Float-feed Compensating	Copper jackets	Flat tubes with fins	Mechanical in head	Band brakes on hub drums, foot brake on transmission	Inverted U
Side chain	4	5	30	3	112½	56	34x4 34x4½	No	Plain	Multiple-port	Integral jackets	Cellular	In heads operated by overhead camshaft	Drum brakes on rear wheels	Pressed steel
Side chain	3	8½	55	1½	112	56½	32x4 34x5	On rear wheels	Annular ball	Automatic dash-pot regulation	Integral jackets	Thomas feeders	Mechanical inlet over exhaust	Expanding in hub drums, one on countershaft drum	Hammered steel
Side chain	3	8½	55	1½	112	56½	32x4 34x5	On rear wheels	Annular ball	Automatic dash-pot regulation	Integral jackets	Thomas feeders	Mechanical inlet over exhaust	Expanding in hub drums, one on countershaft drum	Hammered steel
Side chain	3	8½	55	1½	112	56½	32x4 34x5	On rear wheels	Annular ball	Automatic dash-pot regulation	Integral jackets	Thomas feeders	Mechanical inlet over exhaust	Expanding in hub drums, one on countershaft drum	Hammered steel
haft	2	.....	30	2	94	56	34x3½ 34x4	No	Hess-Bright	Special	Forced draft to air jackets	Blower fan	Mechanical, opposite sides	Internal and external hub brakes	Pressed steel
Direct on front axle	3	12	15	3	102	56	28x3½ 28x3½	Yes	Annular ball	Special	Copper jackets	Cellular	Automatic inlets	Drum brakes on rear wheels	Pressed steel
Shaft	2	.....	30	2	94	56	34x3½ 34x4	No	Hess-Bright	Schebler	Forced draft to air jackets	Blower fan	Mechanical, opposite sides	Internal and external hub brakes	Pressed steel
Side chain	3	9	40	8	106	56	34x3½ 34x4½	No	Hess-Bright	Float-feed Compensating	Copper jackets	Cellular	Mechanical inlet in head exhaust at side	Emergency brakes on rear wheels, running brake on countershaft	Pressed steel
haft	3	4	30	3	102	56	32x4 32x4	No	Roller	Schebler	Integral jackets	Cellular	Mechanical, opposite sides	Expanding and band, both in rear hub drums	Pressed steel
Shaft	2	.....	30	2	94	56	34x3½ 34x4	No	Hess-Bright	Special	Forced draft to air jackets	Blower fan	Mechanical, opposite sides	Internal and external hub brakes	Pressed steel

Apperson, Maxwell and B. L. M. Cars did not start.

All cars used Diamond tires.

figure nearly midway between the ratings of the cars just referred to. The cooling method in these motors is the same as used during this season, the blower revolving very rapidly and being of the peripheral type made after the Sirocco patent, and not like an electric fan or propeller. The valve action is from one camshaft instead of two and this shaft is carried on top of the crankcase at the right side and has its half-time gear between the second and third cylinders. A valve action for the exhausts is identical with that in touring cars, but for the intake valves opposite angular push rods cross between the cylinders from the camshaft at the right to the valve cages on the left where they are supported in bronze brackets on the cylinders and where they actuate the valves through rocker arm action the same as heretofore. The carburetor of the twin variety has two float chambers, and two spraying nozzles with the latter carried in an hour-glass shaped housing so that all air is focused at the tips. A large-diameter, horizontal pipe, lying beside the cylinders, conducts to the valves and in the top of this pipe above where the union to the carburetor is located is an auxiliary air valve. The throttle located at the point of juncture of the carburetor and admission pipe is a revolving barrel with the revolving mechanism enclosed within the admission pipe extending to the rear end

of the pipe where it has connection with the steering column. The Belden transmission, recently described in Motor Age, employed in each, gives a couple of forward speeds with one for reversing and between the case and the clutch is a cardanshaft with a couple of joints. To oil the motor is an eight-feed oiler with four leads to the cylinders, four to the crankcase and another direct to the motor base without a sight feed. The mechanic throughout the race, by means of hand pump, supplied the crankcase liberally with oil. The running gear of these cars has more evidences of perforation to reduce weight than those of the other competitors, the brackets carrying the footboard, the cross pieces operating levers and brake drums being well bored out. Not to pass unnoticed is the use of strut rods from the back axle to the rear ends of the frame pieces, by which the designer claims to get a pulling instead of pushing action in the rod. The rod where it unites with the back spring hanger has a ball and socket joint, coupled with provision for varying its length. In addition to these rods is the regular torsion rod between the frame and back axle and paralleling the drive-shaft. The wheels and back axle are carried on standard roller bearings.

Lastly of the qualifying cars the little Christie is worthy of passing mention in that it is but a 50-horsepower touring car, weighing but 1,780 pounds, by far the

smallest car of the five to start in the Vanderbilt. It has like all other Christie racers, for Christie so far has not devoted much attention to touring cars, a four-cylinder motor carried crosswise between the front wheels with the motor crankshaft forming the front axle, and with the front wheels as drivers, there being nothing in the way of machinery back of the front wheels except the radiator formed as the top and sides of a false bonnet extending back to the driver's seat. The cylinders are water jacketed by a single copper wall and have automatic intake valves on top of ports at the back top of each, with the mechanical exhaust beneath. The carburetor sits low behind the center of the motor. A coil spring suspension is used to take up much of the jar at front and standard springs carry the frame in the rear. This car hangs very closely to the ground and when traveling at high speeds appears to ride a little unsteadily at the back, as the weight of the driver and his mechanic, besides the frame, is all that rests on the back wheels. The Christie road wheel of very small diameter is made throughout from metal and is without a felloe. In each spoke end is an eye hole through which passes a bolt which secures the spoke to a lug on the wheel rim which rim carries the tire. In changing a rim twelve nuts must be taken off when the rim is free from the spoke ends.



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WHERE AMERICA FAILED

 AMERICANS are not satisfied with the showing made by the American cars in the eliminating trial held Saturday last to select a team to represent this country in the Vanderbilt cup race, which takes place next week. But they are encouraged and more hopeful than they were a year ago. Motor Age predicted that American makers would know more about building racing cars after the eliminating trial than they did before; if the makers are honest they will not hesitate to acknowledge that the prediction was apropos. The story is best told in the language of a New York daily paper, which, being free from bias, naturally told what was common remark after the race had been concluded: "The penalty of lack of preparation by entrants of other high power machines, added to the endurance of the successful lower power cars, and the skill with which they were driven, were responsible for letting them into international competition for a trophy where they can do no better than trail the road locomotives of three great automobile-building nations." But while the cars in the aggregate failed to make the showing that was desired and even expected—and certainly the makers and entrants of the cars had hopes of success—at least a half-dozen machines, and three in particular, performed so successfully as to show that the American maker is rapidly forging ahead in the matter of constructing racing machines, and that most of his knowledge has been obtained within the past couple of years. It is regretted that at least one prominent candidate, on which America had pinned a good deal of hope, was wrecked in practice beyond hope of repair in time to start in Saturday's event. It is an indisputable fact that there was lack of preparation on the part of most of the makers having entered cars in the race, proved by the late arrival of many of the cars on the ground. Those makers who took time to build and test their cars made the showing, as might have been expected. The foreigner takes a year or more to build and test his car,

and if it is a better product than that made here it is because of the time and care taken in the work of construction. Yet, with all the care and all the time the foreigner has taken, it will be found that misfortune will fall to him in the same proportion that it did to the Americans. The American cars that qualified in the event of Saturday made such a showing that the prospects of the Vanderbilt cup coming back to this country are far from hopeless, though of course the odds are 13 to 5 against the proposition. The American maker has progressed wonderfully in methods of design and construction and this is the reward that was expected when the race was proposed—and it is a sufficient reward for anybody.


AN UP-TO-DATE OFFICIAL

 HERBURN M. BECKER delights in being called the boy mayor of Milwaukee—he is a boy mayor, and a boy as well. Incidentally, he is an automobilist. He is of the progressive sort; in fact, he is an up-to-date official so far as motoring is concerned, for he believes in scorching anywhere except in Milwaukee and likes to have people know he is something of a speed merchant, as his recent trip to New York shows through the work of his press agent. Now he proposes to take part in an advertising scheme in the form of a trial for the Chicago-Milwaukee record for a cup offered by a Chicago daily paper. It may be Mayor Becker has such a strong hold on the affections of the public that people will applaud his efforts to rip over the public roads at excessive and illegal speed, and it may be the boy mayor will be the means of showing the folly of 8-mile and 10-mile speed limits that now exist pretty generally between the two lake cities. If this shall prove the outcome of the boy mayor's endeavors most automobilists will clap their hands and hurrah for Sherby Becker. On the other



hand, a few Wisconsin and Illinois farmers, constables, marshals and others opposed to violations of the laws relating to the speed of automobiles may take a notion to have something to say about the matter and to do something about it as well. The ordinary motorist, who is more or less of an enthusiast, will hardly approve of the proposed record attempts and of the boy mayor's attitude in the premises. They will be impressed with the idea that it is not becoming in a chief executive to defy laws that ordinary motorists are compelled to obey or pay dearly for disobeying, and they will have a year's work in explaining to the farmers and other residents between Milwaukee and Chicago that what an irresponsible boy mayor does should not be a gauge for all motorists. Incidentally, if something in the fatal line happens during this series of record stunts the Chicago paper responsible for it may have some unpleasant apologies to make to its non-motoring readers for having a hand in the affair.

PLAYING FAST AND LOOSE

 ILLIAM K. VANDERBILT is a good sportsman—a good, all-around automobilist and a crack driver. It is only natural that, having a long time ago shown how easy it was to set a world's record on the beach, he should have an itching desire to do something in the speed line on the road. This accounts for the stories and denials that followed one another in rapid succession about the young millionaire driving in the Vanderbilt cup race for the cup he himself donated as a trophy to encourage a contest between the crack drivers of the world. There was nothing objectionable in competing for the cup he offered himself, inasmuch as the trophy, if won, would not be held by himself; but it did seem a little inconsistent and unsportsmanlike for the donor of the cup to turn in to help take away the chances this country might have in keeping the trophy on this side of the water, as if we had not a hard enough row to hoe as it is. Eventually Mr. Vanderbilt succumbed to the criticism that appeared in the press and decided to be a real American to the extent of not competing in a foreign car for his own trophy, but of course he retained the privilege of purchasing and driving foreign cars for his ordinary use. The public is grateful to Mr. Vanderbilt, and if it well knew how fast and furious things turned over in the young man's mind in a few short hours during the middle of last week its feelings for him would be all the more tender. As it is, Mr. Vanderbilt harmed nobody, and if he did apparently play fast and loose with the newspaper men for a day or so he furnished a quality of dope that had not been forthcoming from any other source in the automobile world for a long time. But Mr. Vanderbilt was wise enough to heed the criticisms that were forthcoming.



NEW KIND OF A JOKE



Two country girls, standing in front of the interurban electric railway station, at Toledo, O., recently, were the victims of a clever trick played on them by two young men of that city. One of the young men proposed an automobile ride about the city. A fine touring car was standing in front of the Spitzer building, about a block and a half away, to where the girls were taken. One of the young men said, "Jump right in, girls." The girls did, then the young men excused themselves, stating they had to go into the office a moment, after which they would soon return for the proposed drive. The men then disappeared through the building and watched for the fun from an advantageous point. Aaron Chesbrough, the owner of the machine, soon came from the building to take his car, when, to his surprise, he found the two young women in the machine. Stepping to the curbing, Mr. Chesbrough said: "Guess you have made a mistake, miss." "Oh, no, we haven't," was the reply. "The owner of the automobile is coming out directly, and he told us to wait for him." "But I assure you there is a mistake. This is my car." Mr. Chesbrough then proceeded to prove his case, when the girls, much chagrined, slowly alighted take. This is my car." The situation naturally became somewhat acute, the girls holding their places in the car in the meantime. The owner was embarrassed and argument seemed futile. He had to be polite and it called for a display of diplomacy and a case of proof of ownership. Mr. Chesbrough then proceeded to prove his case, when the girls, much chagrined, slowly alighted.

Well, Barney Oldfield kept away from temptation a long time.

In an automobile race it isn't necessarily a case of the weak succumbing to the strong.

Mr. Bryan might turn his attention to the Long Island trusts if he is looking for a fertile field.

It is rather unlike Willie K., but he gave people something to talk about when he was suffering with the racing itch.

If Stensland, the Chicago bank wrecker, had reached New York Saturday, even this fact would not have kept the people away from Long Island.

What a sacrifice! Quiet Joe Tracy is converted into a "daredevil" just so a yellow press can have something sensational for its headlines.

And the American makers do know more about building racing cars than they did a week ago; furthermore, they ought to pick up an idea here and there next week.

If two of the three Mercedes cars are scratched from the Vanderbilt final, as rumor has it they will be, Jenatzky will have to put wooden shoes on his car so he can be heard.

Nobody was killed during the Vanderbilt cup race, but a few may die as a result of broken hearts. Had Joe Tracy lost, his would have been a case of double broken heart.

When the boy mayor of Milwaukee starts to do his Chicago-Milwaukee record-breaking stunt he may hit more bumps than those at Glencoe, through which place he must pass enroute.

If anybody criticizes Mr. Thomas for securing French drivers, he may hint something about Shepard, Oldfield, Heath and Keene—four Americans in foreign machines and one foreigner in an American machine.

Perhaps the hundreds of mayors who visited Chicago yesterday and were treated to automobile rides will have learned what a farce an 8-mile speed limit is or how safe a proposition a motor car happens to be. In either case the donation of the cars will not have been for naught.

SUSPICIOUS PATRONS



"The troubles of the garage man," said George Neff, manager of the Delmar garage at St. Louis, which has the agency for the St. Louis Motor Car Co.'s "rigs that run," "would fill several large volumes. Now, here this morning comes one of my millionaire patrons and demands to know 'what you did' with his jack, with special emphasis on the 'you,' meaning me, of course. He had repaired a tire somewhere along the road and probably left his jack right there. He never thought anything more about it until he missed it, then he jumped at the conclusion that I had appropriated it for my own use. The fact is I have more jacks than I know what to do with. Here another customer comes in and accuses me of throwing the switch on his machine. Then he suddenly discovers, in his imagination, that I have been driving his car all night. I have got half a dozen better cars than his at my disposal and if I wanted to go anywhere would use them in preference to his even if I were unscrupulous enough to take his automobile without his consent. His boy had been driving his car and I watched him the last time he left it here. He turned the switch just as his father had been finding it and for which I had been blamed by the owner of the rig. I presume I have paid out a hundred dollars or more for tools to replace those claimed to have been taken from private cars stored with me. It isn't always the owner's fault—it is his chauffeur's, as a rule. The chauffeur would rather accuse me of stealing tools than acknowledge that he lost them. So, you see, the life of the garage keeper is by no means one of those happy dreams you have described."

CHICAGO SEES AUTOMOBILE PARTS SHOW

HALF-HUNDRED EXHIBITORS
SHOW WARES—SOME NOVELTIES



CHICAGO, Sept. 27—The Windy City is this week witnessing its first exhibition of motor car parts and accessories, which is being held under the name of the Automobile parts show at the First Regiment armory and at which upward of half a hundred manufacturers are exhibiting. The opening night, Saturday, September 22, saw a crowd of 500 inspecting the several features exhibited and the succeeding evening as well as those up to the closing night, September 29, give promise of about the same attendance. The show is an individual enterprise, and poses as an opposition candidate to the shows conducted by the other motoring fraternities. Owing to this fact the exhibitors' list contains the names of very, very few of the reputable parts manufacturers, they realizing that to exhibit at this show meant barring from the national shows. As a result many exhibit spaces are devoted to small makers who have one or more small parts to offer.

The Speed Changing Pulley Co.'s Universal carbureter differs in several details from present types. Now the float is a horseshoe-shaped piece of laminated cork made very light and the needle valve regulating the entrance of gasoline is carried in an expansion at one side, the float operating on the valve through a short lever fulcrumed on a six to one basis, thus allowing of a very light float. The lever has a yoked end fitting in a collar on the needle valve plunger so that the valve is not closed entirely by its own weight, but also by the float leverage. The carbureter is now fitted with a spring controlled auxiliary air inlet valve, which allows air reaching the mixture without its passing the nozzle. The nozzle is placed in the center of the float and takes the form of a tube supported from the top of the mixing chamber, the lower end of it fitting within a vertical pipe. In the lower end of the depending tube are four slits through which the exiting gasoline must pass and according as this tube is raised or lowered the useful length of these slits is varied and the quantity of

The same principle used in the construction of its locomotive headlight generator is followed by the Adams & Westlake Co.,

of Chicago, in the construction of its automobile generator. One of the noticeable features is seen in the carbide basket, an upward movement of the lever releasing the receptacle from the generator so it can be cleaned and recharged. The reverse movement readjusts it into a perfect gas-tight fit. The water feed is well-balanced and a constant height is maintained, no matter how much water there is in the reservoir.

Leakage is avoided in the Witherbee storage battery igniter by the jar and carrying case being of one piece of extra strong vulcanite, divided into compartments forming cells. A vulcanite cover is bolted to the jar and there is a pure gum soft rubber acid-proof gasket between the cover and jar.

In the Crouse-Hinds double ball contact distributor practically the same principle is used as in the commutator. There are two cams and two sets of ball contacts, one set for the timer and the other for the distributor. There is only one ball in each contact and the cam is insulated from the shaft. The connection is made and the circuit closed for each cylinder as the cam passes between the balls. The current is prevented from jumping by the fact that the circuit is closed on the dis-

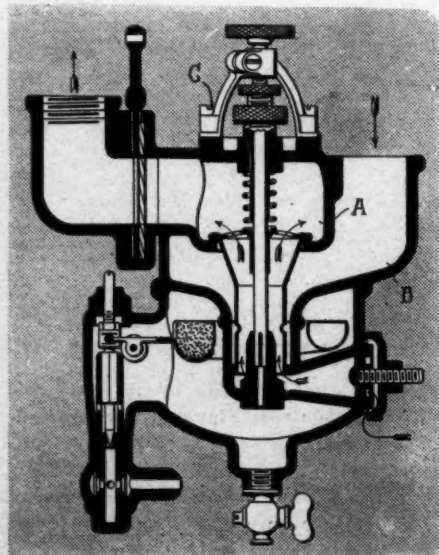
tributor before it is closed in the commutator and as it is broken first in the commutator.

The Helios storage batteries are designed for electric vehicles and are of the pasted type, the negative and positive grids being made in such a manner that the greatest amount of conducting surface is obtained which reduces the internal resistance to a minimum which is productive of great sustained high voltage during the discharge.

The U. S. and Atlas jacks are shown by the U. S. Jack Co. The former has a screw with a double thread which starts at the end like an auger bit, while a thumb screw prevents rattle. The Atlas has just been brought out. It is 11¼ inches over all and the lever has an up and down motion, being slotted at the end so as to move in or out and engage from one to four teeth of the wheel. The head revolves on the end of the screw and it fits the truss brace, round or square axle and is capable of raising a car 26 inches or more.

Adelite automobile enamels as made by the Adams & Elting Co. include the Renault gray, the Panhard lavender, the Darracq green, the Napier red, the Martini blue, the Züst blue, the Mercedes yellow, the Brasier red, the Mors green, the Freres maroon, the Fiat brown, the La Fourche green, the Vivinus brown and the Decauville green.

The Long & Mann Co. has the Minute tire adjuster, a device made of high-test steel in four parts—the wheel support, hub attachment, tire attachment and pryer, the last also being used as a handle when the device is adjusted. Four rollers in the fuel controlled. The regular air valve is spring controlled and as it opens or closes it raises an aluminum thimble that surrounds the top of the nozzle, compelling all of the air passing up by the nozzle in slow speeds but as the thimble rises in higher speeds the amount of air passing the tip is slightly lessened proportionately. The construction of the carbureter is slightly altered, by making the float parts A and B integral, with the various adjustments, for the nozzle, air valve and valve spring on the top of the carbureter body.



1907 UNIVERSAL CARBURETER

tire attachment are designed to reduce friction to a minimum, one of them rolling between the rim and tire bead, a second on top of the rim and the other two on the outside edge of the tire.

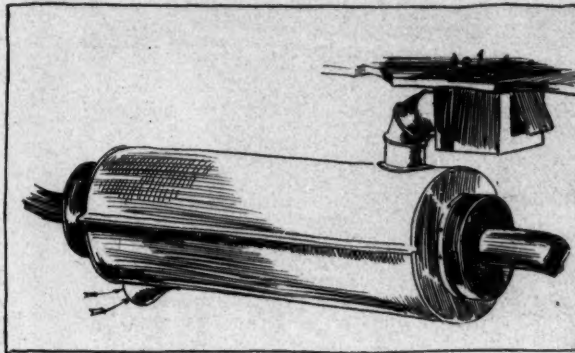
The Spencer giant air pump for tires is a two-cylinder affair, one similar to an opposed two-cylinder motor. It is operated from the front end of the motor crankshaft by placing a bracket on the crankshaft end or putting a square hole in it into which the pumpshaft fits. A union pipe takes the air out of each cylinder and conducts it to the tire. Stop valves are used.

A new feature in ball-bearings for automobile wheels is found in the wheel exhibited by the Federal Automobile Co., in which an exceptionally large cone is carried on the axle spindle, permitting of using thirty-two $\frac{1}{2}$ -inch balls for carrying each wheel on a $1\frac{1}{2}$ -inch spindle. Using a large bearing cup and cone increases the hub size considerably, giving it a slightly abnormal appearance.

Both wood and galvanized iron are used as constructive materials in the garage houses built by the Chicago Portable House Co., the one erected in the exhibition space being of wood construction, measuring 9 by 10 feet with 8-foot walls and double end doors. The siding containing the windows is in eight sections, and besides these the separate pieces in which the building is shipped to a purchaser are six roof sections, two gables, four foundation sills, one rafter section, eight uprights and two doors. There are two windows in the sides and one above the doors.

In its motor car tops the Perfection Auto Top Co. uses four bows for a two-seated vehicle and lines the interior with grey whipcord or other fabrics. Besides tops its line incorporates dust covers, slip covers, dust shield and lamp covers.

C. J. Downing exhibits at his booth a



WALTON MOTOR CAR HEATER

complete line of lamps, horns and generators. The lamp line consists of bullet head lights, side lights of all varieties and tail lights of various sizes.

The Studebaker automobile front is a glass shield carried above the dash and made in two sections, a lower and an upper half with a heavy brass framework surrounding both. The upper half rests on the framework of the lower half and is prevented from sliding out of position by a series of set screws but when desired by loosening these screws it can be moved slightly to the front when it will drop down beside the lower half, forming a shield only half of the height of the former. It is made by the Studebaker Automobile Co. at its Chicago branch.

Heat from exhaust gases going to waste and passengers freezing in the rear seats in fall and wintry days have been sufficient to warrant the Walton Automobile Garage utilizing this surplus warmth for the comfort of the car's passengers. In doing this the muffler is jacketed with an aluminum or jacket of any other metal, just as a cylinder of a motor is water jacketed. Into this jacket space cold air enters at the bottom and from the jacket top is a pipe for conducting the heated air to a little screen opening in the car floor beneath the feet of the passengers. Beneath this opening is a cubical box into which the hot gases first enter

before passing through the screened top. For the regulation of the heat a damper is placed in the screened opening, together with a short finger lever for opening and closing it. This damper is so connected with a door in one end of the cubical box that with the damper open the door is closed, forcing all of the heated air to the feet of the passengers. With the damper closed the door in the end opens, allowing of free escape of the heated air. The device can be attached beneath the flooring of any car. It occupies very little

space and adds less than 15 pounds to the weight of the machine. It is made in standard sizes to fit mufflers of certain design.

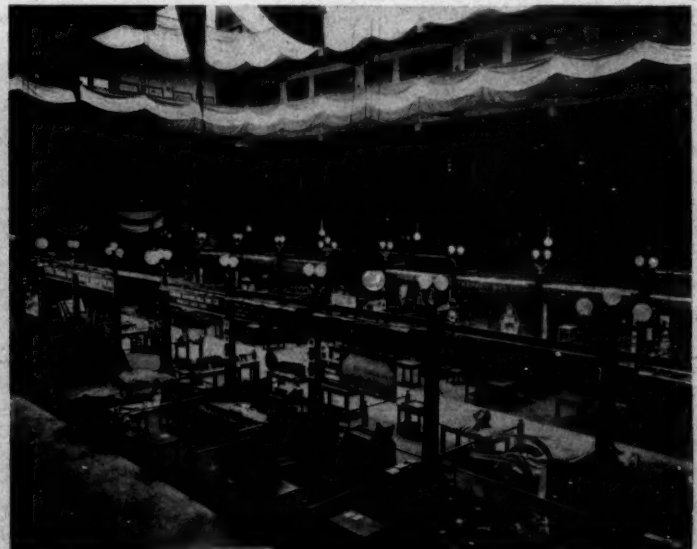
In the Franco-American Auto Supply Co.'s stand is seen the Tubaphone, a multitube signal horn; the Freeman auxiliary chair for tonneau use, the Look sparking batteries in several sizes, the Bell pressure-indicating tire pump, besides many accessories like tire covers, electrical goods, magnetos and other appurtenances. The Harburg tire is included.

The Chicago Flexible Shaft Co. has in its Sterk's long-distance siren a good substitute for other signaling devices, and incidentally one of the noisiest exhibits in the armory. It is a hand-operated siren carried on the rear of the dash and was fully described and illustrated in last week's issue of Motor Age.

Unique in the way of exhibits is the fur display made by the J. H. Bishop Co., which shows fur lap robes and coats and other garments for the use of automobilists. Peerless inner tubes and tire protectors make up the exhibit of the Empire Automobile Co. The Tuthill Spring Co. has a line of automobile springs in half and full elliptics, made of crucible steel, as well as concord side springs. The McCanna automatic cleaning spark plug and oiler are exhibited by John F. McCanna, while J. C. Paul & Co. have Burni-

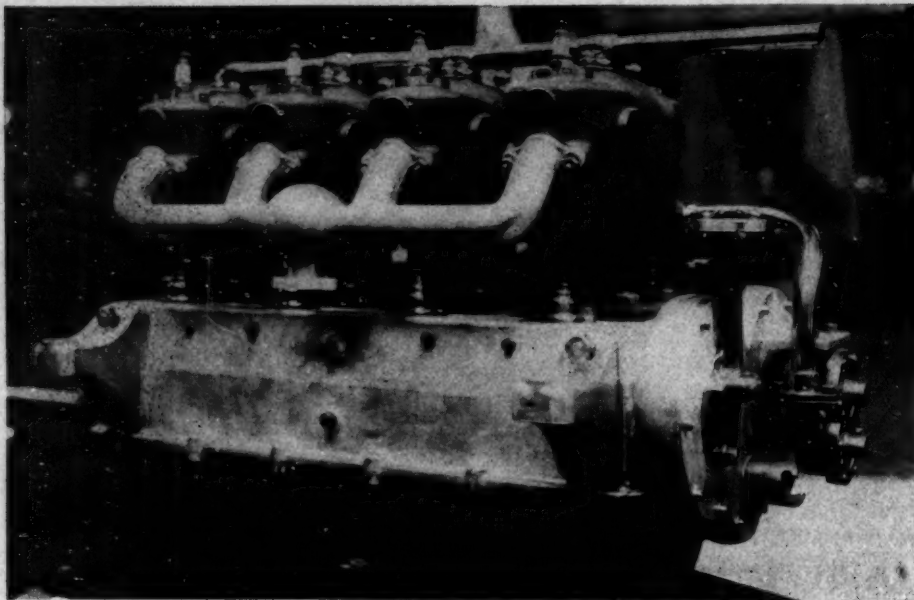


SEEN FROM SOUTH GALLERY



CHICAGO'S AUTOMOBILE PARTS SHOW

SEEN FROM NORTH GALLERY



REEVES WATER-COOLED 20-24-HORSEPOWER MOTOR

shine, a metal polish made of oil liquid which is declared to contain no acids or anything injurious to the metal or hands. Electric storage batteries made by the National Battery Co. have as a feature rubber jars in which the bridges in the bottom are furnished with a patented soft rubber top on which the plates rest, thus reducing the vibration. The Lea speedometer, which combines a speed indicator, a total odometer and a trip odometer; the Lea Perfect tire pump and the Boss gasoline filter are displayed by William S. Jones. The Irland automatic wrench shown by the Irland Pipe Wrench Co. is a handy little tool which is useful in loosening such things as a muffler pipe. The Linnousine Carriage Mfg. Co. exploits its wares, while the Turner Brass Works has the Turner carburetor. Bronze is used entirely in the construction of the carburetor and all connections have standard threads. It is a poppet valve carburetor with the individual constant vacuum system of control. It is claimed that in an emergency wood alcohol can be used. The Quincy-Manchester-Sargeant Co. has the Auto-Cle wrench, enamel varnish and the Stanwood step.

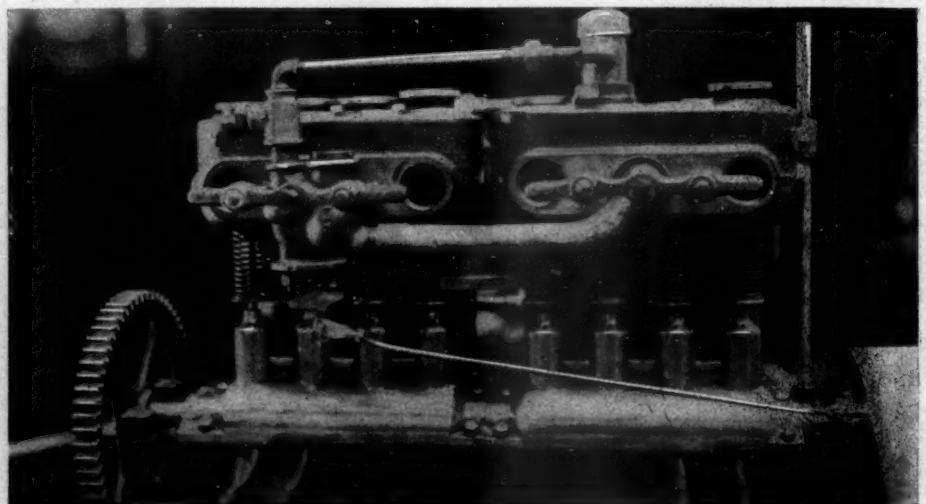
No-Ko-Rode, designed to stop corrosion of spark plugs and cylinders, is shown by Alvin & Jackson. Gasoline is treated with this compound by simply uncorking the No-Ko-Rode bottle and lowering it into the gasoline, leaving it there a period of 5 minutes for each 5 gallons. Norton grinding wheels, shown by the H. A. Stocker Machinery Co., are made with alundum as the principal abrasive. Alundum is manufactured in an electric furnace plant at Niagara Falls on account of the large amount of electrical energy required in its production. Ever-Ready dry cells, pocket ammeters and other devices are displayed by the American Electrical Novelty & Mfg. Co. J. A. Fisher & Co. have generators and lamps.

The Manhattan Electrical Supply Co. has the Red Seal dry battery for automobile, stationary and marine engines. Hope-well Brothers have the Arc spark plug, while the Hotchkiss anti-jolt device is displayed with all its well-known features. F. M. Parks has cements, while the Auto Cape Top Co. displays tops for automobiles. Ralph Temple has winter bodies for cars. The United States Graphite Co. shows a line of lubricating graphite and Adam Cook's Sons Albany grease.

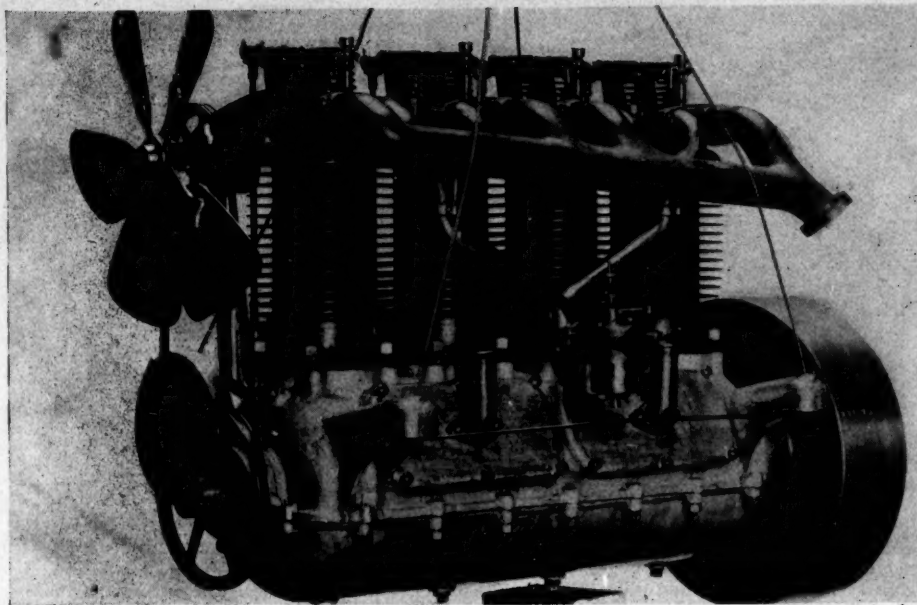
Besides its line of air-cooled motors, the Reeves Pulley Co. shows a water-cooled motor of the four-cylinder type in which all of the cylinders are separate casings with the valves on one side and opened from a single camshaft. Exceptionally neat arrangements are accomplished by driving the commutator from the end of the camshaft by bevel gears and carrying it on the top of a short, vertical shaft. The pump is carried conveniently on the end of the crankcase and is gear-driven, neither it nor the commutator requiring special shafting on the motor. The model

shown has 4-inch bore and 4-inch stroke with a rating of 20-24-horsepower. The exhaust manifold is a one-piece piping of neat lines, and the aluminum intake is likewise of simple shape. Besides this, the company is still in the air-cooled business, manufacturing four and six-cylinder motors with integral cooling flanges for the walls and heads.

To the tall grass with the starting crank for the gas engine is the watchword of the Lau-Pearson Motor Co., in its very novel 30-horsepower four-cylinder four-cycle water-cooled gasoline motor. How the self-starting is accomplished is best gained by looking at the view of the left side of the motor. On top of the third cylinder, counting from the left or front, is a short hollow cap screwed into the opening above the intake valve. From this cap leads a small copper pipe which unites with what looks like a carburetor beside the two front cylinders. From this carburetor-like casing is another pipe leading to an air tank carried beneath the chassis body. The carburetor-like chamber contains two compartments, in each of which is a poppet valve with its vertical stem protruding through the base. Placed beneath the casing is a toggle joint device with an arm to bear against the bottom of either of these valve stems, according to the dictates of the rod connection attached to the bottom of the toggle. The other end of this rod connects with the car pedal, through a cross arm between the fourth cylinder and the motor flywheel, at which place it is interconnected with the camshaft so that the camshaft can be shifted front or rear. To start the motor the pedal is depressed, at which time the camshaft is shifted, bringing into action a set of false cams which open the intake valves on the two front cylinders and the exhaust valves on the rear cylinders. Besides this it opens one of the valves in the carburetor-like casing which allows the compressed air from the chassis tank rushing with a pressure of 80 pounds to the square inch into the two front cylinders and closes the other valve in the carburetor-like cas-



LAW-PEARSON SELF-STARTING GASOLINE MOTOR



CARRICO AIR-COOLED FOUR-CYLINDER MOTOR

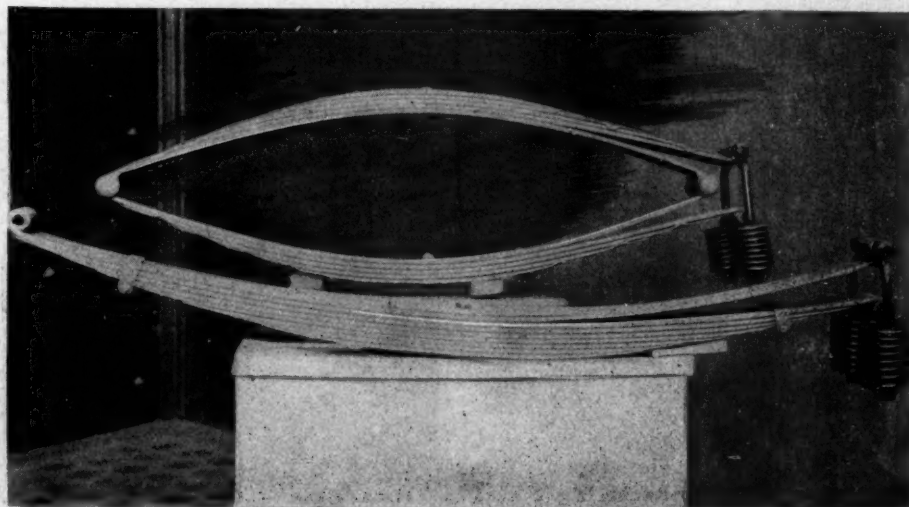
ing so that mixture from the real carbureter not shown, cannot enter the two front cylinders. The exhaust valves in the two rear cylinders being opened permits of the air pressure in the two front cylinders very easily starting the motor. As soon as it is started the pedal is released and the valve closed, which lets air into the cylinders. The one opened allows gas from the carbureter reaching the valve chambers of the two front cylinders. The camshaft is shifted so that its regular cams come into operation. The pressure of 80 pounds to the square inch is maintained by the third cylinder through the force of the explosion in this cylinder, forcing gas into the tank. A check valve prohibits its return. The entire action is accomplished by the depressing of the pedal, letting the air into the front two cylinders and starting the motor and then releasing it when the air is shut off. The carbureter takes up the supplying of mixture. The maker claims that in 4,000 miles of touring this starter has not failed on a single occasion and has worked after the car has been standing in a garage for over a week. The total weight added to the car does not exceed 15 pounds. In the illustration the exhaust is removed. Features of the Lau-Pearson, or Triumph motor are: Cylinders cast in pairs with integral waterjackets, bore and stroke of $4\frac{1}{4}$ by 4 inches, bevel-seated mechanical valves, aluminum crankcase with three crankshaft bearings carried in the top half, the lower serving for an oil reservoir, phosphor bearings for the crankshaft, crankshaft with end throws together and at 180 degrees to center throws which are also together. The commutator is on a vertical shaft at the rear.

Considerable improvement is shown over this season's model in the 1907 model of the Carrico engine, manufactured by the Speed Changing Pulley Co. at its factory. The engine is air-cooled and for the

present continues to be made in but one size, but a design is now being completed for a water-cooled engine of higher horsepower which will be added to the line later. The horsepower of the engine is 20-24. It is built with four cylinders having 4-inch bore and 4-inch stroke, the cylinders, which are of a grade of iron especially adapted for air-cooled work, being bored to within .002 inch of size before being ground, securing straight and cylindrical cylinder bores. The valve cages are in the cylinder heads, ground in on a flat seat and held in place by four cap screws. The exhaust manifold is on the left-hand side of the engine, the inlet also being on the same side. The carbureter is the Universal type manufactured by the company. All inlet pipes are of equal length, the bends being of large radius. Considerable interest is attached to the valves, as it is in this feature of construction that the company has paid particular attention. They are mechanically operated from one camshaft by means of the drop-forged hardened tappet levers

on top of the valve cages, which are connected with push rods by means of a forked steel drop forging. This type of construction has a tendency to eliminate to a considerable degree the greatest objection to air-cooled engines, the noise of the valve operating mechanism. The fan has six blades and is 15 inches in diameter. It is mounted on two No. 801 annular type ball-bearings. The fanshaft is on L-shaped forging, very symmetrical and supported in a Parson's manganese bronze casting, bolted to the front end of the engine crankcase. The crankcases have the bearings, arms, etc., cast integral with the upper half. They are of special aluminum alloy. The crankshaft and lower end of the connecting rods are made of Parson's white brass, the bearings being hand-scraped to fit, arranged with six thin brass liners on each side to make adjustments for wear. The connecting rods are of high carbon steel, I-section, drop forgings. Pistons are of very light construction and are of a special tough, close to the shaft by means of Woodruff keys. Cam rollers are $\frac{3}{8}$ -inch in diameter and the cam roller guides are held by a 7-1 stud. Camshaft gears are of ten pitch. The spark timer is mounted on a vertical shaft, driven by a pair of mitre gears on the camshaft.

Something entirely new in the spiral supplementary spring scheme appears in a twin spring construction used in conjunction with the double end spirals and used with either full elliptics or semi-elliptics. In full elliptics the elliptic part at one end is twined, the inner leaves uniting as in any full elliptic, but the remainder of the leaves in the top half attaching to the lower end of the spirals and the lower half of the full elliptic attaching to the upper end of the spiral. The shackle attaching the spring to the car frame is secured to the upper twin part of the spring. By this construction the second leaves are longer than the inner pair. In semi-elliptic the long top leaf constitutes one part of the twin with the remainder of the leaves forming the other part. The spiral



SUPPLEMENTARY SPRING CO.'S NEW SPRINGS



DD INNER TUBE COVER

THE CHASE TIRE COVER

VEHICLE APRON TIRE COVER

attaches to both of these parts and the frame is shackled to the single top leaf at the same spring eye to which the spiral is secured. The result of this special spring design, coupled with the spirals, gives a decided flexibility of action with limited rebound.

The Longdin-Brugger Co., devotes its energies in building motor car tops to using such materials for covering as Pantasote, rubber, Mackintosh and full Morocco. Steel bows are leather covered, three bows are used in single-seated vehicles and four bows for tonneau machines. Complete tops include three side pieces—two sides and front, all with large window spaces and buttoned in position.

The America Co. has in its Rockford wrench a one-hand adjustable alligator wrench which combines strength, convenience and serviceability. It is made from tempered steel, has the teeth cut so as to firmly grip and is adjustable by one hand by a small latch hinged to one jaw and spanning the other jaw with a row of serrations in the latter into any of which the latch can be pushed by the finger, giving any required opening.

The Marion Motor Car Co. exhibits the Hassler transmission, a complete description of which appeared in the August 30 issue of Motor Age. The feature of this transmission is that it is carried in the housing enclosing the differential on the back axle. It gives two or three speeds ahead and is in reality a sliding gearset of very compact arrangement in which the sliding gears are on the rear end of the propellershaft. They drive into a disk with side pins instead of teeth and from this disk the drive is bevel gear to the back axle. A point in the gearset is that the rear end of the propellershaft is carried much higher than is the case where the gearset is carried beneath the center of the car.

In order to protect the inner tube of a pneumatic from possible puncture the D D Tire Co. wraps the inner tube in a canvas and rubber covering, laces this covering

tightly in place and then places it with its air chamber within the tire casing securing the tire casing as when the wrapper is not used. In the illustration the wrapper is shown partly laced with a heavy cord with the air chamber partly protruding at the base. Instead of heavy cord, flat rawhide laces are used, making a smooth union. The wrapper is made with strips of fabric wound in bandage form and a rubber adhesive binding the whole together. To lend additional aid against puncturing a flat rubber strip is vulcanized over the tread surface of the wrapper. When the wrapper is used the size of the inner tube is claimed to not be abnormally increased, thus a maker using a certain size of air chamber without the wrapper uses the same size of air chamber with the wrapper, the wrapper allowing for higher air pressure.

Makers of covers for protecting a tire casing from sun, rain and weather when carried on the side of a car, have been aiming at making a cover easily replaceable and yet one sufficiently weatherproof to bar rain and sun. In doing this the L. C. Chase & Co. makes use of a leather covering which fits the tire as closely as any covering laced in position or buttoned around the tire casing. One side of this casing is fitted over the tread part of the casing and tightened thereon by a heavy string as shown. With this part in position the other side of the cover is positioned when it covers the entire casing and warps over the tread part above the other side of the covering. It is then

tightened in place by a wire with locking block as noted in the illustration. To protect the wire and make a neat cover a flap covers the entire union and buttons with a glove fastener to the opposite side of the casing, thus completing a weather proof cover and one that can be attached or removed by three lockers—the string, the wire and the glove fastener.

The Vehicle Apron & Hood Co. has an adjustable tire casing cover in which elastic bands secure the cover around the casing. In putting the cover over a casing the elastic band along one side of the cover holds that part of it tight around the casing, after which the opposite side of the cover is wrapped around the casing and once more over the tread, where it is held in position by an elastic band within an edge seam in the covering. The company makes a specialty of rubber and waterproof clothing as well as other wet weather necessities.

Morrison, McIntosh & Co. make the Grinnell ventilated, air-cooled, wrist-fit motor car glove for use of chauffeurs and drivers. In place of the heavy seam decoration or bead work on the back of the glove and along the backs of the fingers are three rows of small perforations through the glove material. These perforations are diamond shape. To make the glove wrist-fitting an elastic tightener is attached on the wrist part so that by pulling a button on the end of the elastic the glove is tightened to the wrist at any tension. By simply pulling a flap the tightener is loosened. The arm part of the glove is made very large to allow for coat and shirt cuffs without creasing, yet allowing easy wrist tightening. A V-piece of soft leather is inserted in the arm part of the glove where it unites with the hand part, so that when the wrist part is tightened to any extent this V piece wrinkles, leaving the arm piece of normal size. When the wrist fastener is loosened this V piece allows for the expansion, still leaving the arm part in its normal condition.



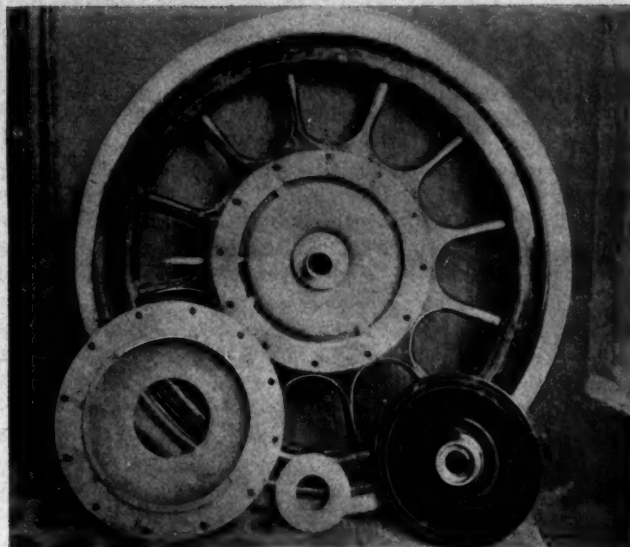
GRINNELL VENTILATED GLOVE

J. Milton Waugh introduces his novel motor car spring in which all of the leaves are the same length and are held together at the ends by fitting snugly in a spring block which has a pivotal connection with the spring hangers. The spring at its center rests upon an arched spring seating of 18 inches length so that when in use the spring is arched from the center to the two ends—opposite to that of any semi-elliptic spring. This spring was illustrated and described in the last issue of Motor Age.

The Charter Mfg. Co. has a separable spark plug, recently described in Motor Age, and which by the loosening of a thumb set-screw the central electrode can be removed and cleaned without taking the plug casing out of the cylinder head. The Charter oiler is of the compression feed type and carries the lubricant in a cylindrical tank and has six, ten or any other number of sight feeds in plain view always.

In its tire pump the Rotary Triplex Pump Co. uses a three-cylinder pump with the cylinders arranged as the spokes would be in a three-spoke wheel. In each cylinder is a piston worked from the center by an eccentric operating against the end of the piston rod. Suitable hose connections are used.

Putting the pneumatic tire within the hub of the wheel and carrying a solid rubber tire on the wheel rim is the policy pursued by J. C. Morahan in his motor car wheel. As illustrated the wheel has twelve comparatively short spokes and a normal rim but a very large hub. Within this hub is a small diameter pneumatic tire consisting of an air chamber only, to which air is furnished through a valve ex-



MORAHAN'S PNEUMATIC WHEEL

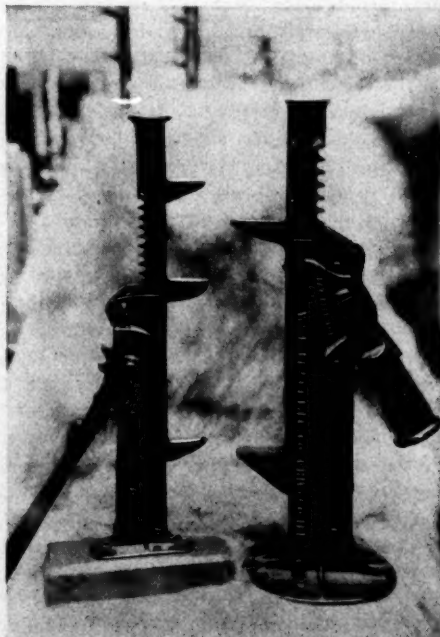
tending horizontally to the left. Four projections serving as lugs retain this air chamber in a fixed position preventing turning within the hub and tearing off the valve stem. Within the air chamber is an axle tube surrounded by a heavy rubber washer fitting against the inside of the air chamber. At the bottom of the wheel appears a large plate at the left formed with a central opening for the axle and a concave side space to fit over the half of the air chamber. A washer, shown at the bottom center of the wheel, fits within this plating, preventing its rubbing against the air chamber. At the right bottom is a hub plate which binds all of the parts together. The air chamber is thus completely protected from moisture or dirt and absorbs jars in the same way as if on the outer wheel rim.

Pratt's motor car jacks are in four styles—a small-sized screw jack, a similarly sized ratchet jack, a large-sized ratchet jack, shown in the left of the illustration, and a large ratchet jack, in the right of the illustration, used for work in connection with commercial machines only. The screw jack has a vertical lifting rod with a tooth rack in one side. Beside this rack is the vertical barrel-shaped screw, the threads in the center of which mesh with the teeth on the lifting rod. The screw is turned by a short iron handle. It is finished in black. The ratchet wrench, finished in polished metal, has a permanent handle which raises or lowers by the working of a small finger catch. Both the large-sized motor car ratchet jack and that for commercial cars are finished in black, the first with a permanent iron handle and the latter with a short socket handle into which is inserted a round wood handle, affording long leverage for lifting. The motor car jack has three lifting feet on the side of its lifting rod and that for the commercial machines two feet. The latter is made with a large circular metal base whereas the large-sized motor car jack has a wood base. Besides jacks

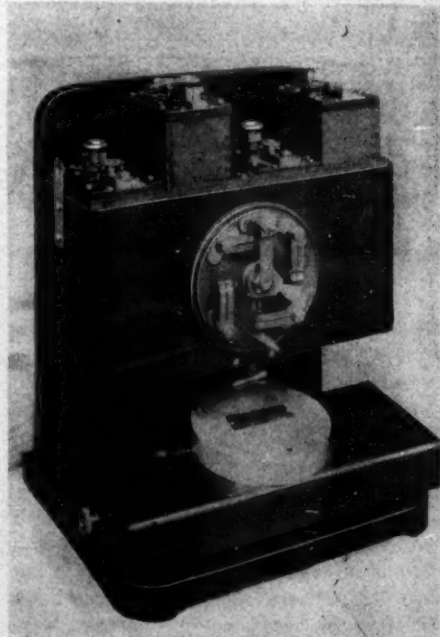
the Pratt Mfg. Co. makes polished metal axle supports for jacking up one, two, three or all four wheels of a car when standing in a garage so the weight is taken off the tires. In using these supports the axle is first elevated by a jack when the support is put in position and then lowered upon them, when it rests firmly on them.

As neat an electrical apparatus for motor cars as the user can desire is obtained in the combination coil and distributor made by the Heinze Electric Co. and illustrated on these pages. The coil of either the one, two, three, four or six or eight-unit type is carried in a standard cabinet, a partition separating the units. On the front of the box is the commutator or distributor with

its V-shaped revolving brush in the center carried on a horizontal shaft passing through the coil box and driven by bevel gear, belt or chain at the rear of the case. Providing the coil case is carried on the rear side of the dash, the drive is most convenient to the motor. The four contacts consist of four opposing springs arranged in sets of two each. The ends of these springs between which the V brush passes are bent toward each other until they are in contact. The spring tension is such as tends to retain them in this position. When the brush passes between them a slight separation occurs, but immediately the brush is passed the spring tension forces the opposing pairs of springs together without consequent vibration and the contact for the next revolution is assured. An aluminum cover for the commutator is shown resting on the cover to the coil case in the bottom of the illustration.



PRATT'S MOTOR CAR JACKS



HEINZE'S COMMUTATOR ON COIL

FACTS ON TROPHY CARS

Review of Tourist Cup Race Field Shows Changes in Construction Over Last Year

London, Sept. 16—Full particulars of the entries for the Tourist trophy contest on the Isle of Man on September 27 are now to hand. A comparison with those of last year shows that there are forty-seven probable starters, as against forty-eight last year. Of these twenty-three are all British, as against twenty-two in 1905; there are thirteen French, against thirteen; three Belgians, against four. Italy sends three debutants, while five are hybrids, against four last year. America had two steamers and a Cadillac last year, but is not represented this time. Analysis of the specifications shows that in the majority of instances horsepower has been increased, even though some of those lower-powered engines ran short of fuel last year. Another universal feature is an increase in length of wheel base and in many instances a decrease in tread. The former is due to the necessity to provide for a side entrance body and not from any mechanical necessity, since the shorter bases are known to be better hill-climbers. The decrease in tread is due to the fact that last year some were specially widened under the assumption that increased stability was necessary for the course and speeds.

The principal conditions of the contest are: The distance shall not be less than 150 miles nor more than 300. It will be about 160 this time. The fuel must be petroleum spirit of a specific gravity of from 0.695 to 0.705 at 60° Fahrenheit and the allowance shall be 1 gallon for every 25 miles of the course. The weight of the chassis, including tire and ignition apparatus, shall not be less than 1,275 pounds. The load to be carried shall not be less than 1,125 pounds, of which not more than 300 pounds may be ballast. The chassis must be of the ordinary touring type and the car conform in every way to the requirements of the British law. The tread must not be less than 48 inches nor the wheelbase less than 96 inches. There must not be more than four forward speed gears. Every car must show by preliminary test that it can be driven at 12 miles per hour on the level on its top speed, and can climb a gradient of 1 in 6 on its lowest without touching the clutch. The body fitted must be substantially constructed, upholstered and furnished, giving seating for driver and three passengers facing forward. Seats must be at least 34 inches from the ground, with backs to them not less than 15 inches high. The platform behind the dashboard must not be less than 7.6 inches long nor 30 inches wide, and shall be entirely occupied by the body. Although it has been stated that some of the cars which ran in last year's con-

test were to be again used, the figures given in the specifications go to show that none of them will be driven in this year's contest. Thus the 18-horsepower Arrol-Johnston car is 14 inches longer in wheel base and 1 inch less in axle length, though it has the same obsolete type of engine and is marked at \$830 less in price. The 20-horsepower Rolls-Royce is also 10 inches longer in the base and 2½ inches wider in the axle, but \$150 more in price. These cars were first and second in last year's contest. The third car then—the Vinot & Deguingand—has increased from a 14 to a 16-horsepower, so that comparisons are difficult. The Rover, which was then fifth, now appears with cylinders increased by 2 inches in bore, 12 inches longer wheelbase, 7½ inches wider axles and \$50 cheaper. The other cars that appear with engines of similar power to last year are the 16-horsepower Humber, 16-horsepower Swift, 14-horsepower Thornycroft, 18-horsepower Siddeley and 10-horsepower Peugeot. All the others are altered in power and in many other particulars. Four speeds are very generally adopted and in the Rover and Climax the third speed is adopted for the direct drive. Last year the Rover had only three speeds. On the Straker-Squire cars—which are entirely new and untried—direct drives are secured on both third and fourth speed. The 16-horsepower Swift is only altered by having 2 inches added to its axle length and \$75 to its price. The 14-horsepower Thornycroft has a 4 inches longer base, a fourth speed, but no direct drive. This latter feature is shared by the Siddeley, James & Browne and Bianchi. The 18-horsepower Siddeley has simply 8 inches longer base and 3½ inches less tread. The two-cylinder 10-horsepower Peugeot is singular in that it is rated as last year, but its cylinder dimensions are increased from 4 by 4 inches to 5 by 5½ inches, with the same revolutions per minute, while it is a foot longer in the base and 4 inches narrower in the tread. It is also \$225 higher in price.

FOREIGNERS ARRIVE

New York, Sept. 25—La Savoie brought in late yesterday afternoon five more of the European drivers—Lancia, Nazzaro and Dr. Weilschott, of the Italian; Duray, of the French, and Jenatzy, of the German team. They were all at their training quarters today, where their racing cars were awaiting them. Wagner, who has been substituted for Hemery, is expected to arrive tomorrow, and Clement is due to get here on Friday. Heath and Shepard, of the French, and Fabry and Cagno, of the Italian team, have been on hand for several days. Foxhall P. Keene is at his country place at Cedarhurst, near the course, but has done no practice with his Mercedes. It is the same one he drove last year. From this, and his failure to show up for the grand prix, it does not seem any too probable that he will be a contestant in the race.

RIGOLY A CUP WINNER

Gobrons Land in Leading Positions in Auvergne Circuit Test—Twenty Cars Finish

Paris, Sept. 9—The Auvergne circuit cup this year was won by Rigoly in a Gobron; in fact, it was a Gobron victory all down the line, the first four cars being of that make. Six classes were provided for, beginning with motor cycles and ending with four-cylinder cars. Classes 1 and 2 were for motor cycles and triecycles; class 3 was for single-cylinders weighing 1,760 pounds and capable of making 15½ miles; the fourth class was for four-cylinder cars weighing 3,300 pounds, averaging 18½ miles an hour; class 5 was for four-cylinder cars weighing 4,400 pounds and able to do 21¼ miles; class 6 was for four-cylinder cars weighing 4,409 pounds and averaging 24¾ miles. Thirty-two cars started and twenty finished. The final standing was as follows:

Position, Car and Driver	Class	Time
1—Gobron, Rigoly	5	17:19:35
2—Gobron, Dureste	4	17:58:28
3—Gobron, J. Gobron	5	18:09:13
4—Gobron, Faroux	4	18:36:13
5—Brouhot, Feullet	6	19:50:48
6—Gobron, Baron Eynard	5	19:59:40
7—Rochet-Schneider, Hamelin	6	20:17:34
8—Herald, Dubois	5	20:22:28
9—Brouhot, Maréchal	5	21:53:40
10—Brouhot, Souchal	5	22:24:22
11—Brouhot, Briand	4	23:03:34
12—De Dion-Bouton, Pellisson	4	23:50:07
13—Darracq, Sire	4	24:01:25
14—Cottin-Desgouttes, Deydier	5	24:08:05
15—Cottin-Desgouttes, Fraignac	5	25:12:41
16—Peugeot, Ferret	5	26:47:42
17—Contal, Pons	2	.....
18—Sizaire & Naudin, Sizaire	3	.....
19—Bruneau, Slinde	1	.....
20—Lacoste-Battmann, Marlingue	3	.....

The first day was a roundabout run from Clermont Ferrand to Vichy, a distance of 115 miles, part of it being over the course over which the last Bennett cup race was run. On this stage Rigoly made the fastest time, his average being 34 miles an hour. Two other Gobrons were behind Rigoly. In the fourth class two more Gobrons shone with distinction, while in the third class Sire's Darracq was first. Twenty-nine cars started from Vichy for Le Puy, a distance of 125 miles, divided into two stages. The fastest time was made by Jean Gobron, in a Gobron, in the fifth class, averaging 37 miles an hour. Rigoly had tire troubles, but was only 5 minutes back of his team mate. Hamelin, in a Rochet-Schneider, was the leader in class 6, while in class 4 the same two Gobrons stuck. In the class for small cars the leader was a Sizaire & Naudin.

From Le Puy to Aurillac, a distance of 124 miles, on the third day, Jean Gobron again excelled, averaging 31 miles an hour. In the general classification, however, Rigoly still led, although 11 minutes behind. A Brouhot was best in class 6, the Rochet-Schneider having lost ninety points. The two Gobrons were still high in class 4, while a Lacoste & Battmann was the leading car in class 3.

At the end of the third stage, five Go-bron cars headed the list, sixth and seventh positions being occupied by Brouhot, ninth by a Rochet-Schneider, and tenth by a Brouhot. The fourth stage was from Aurillac to Brionde, 112 miles, and the last journey from Brionde to Clermont Ferrand, 100 miles, the total distance traveled being nearly 630 miles.

The Ardennes circuit was the scene of a contest on Sunday between motor cyclists divided into racing and touring classes. The distance round the circuit was 45 miles, the route being from Neufchateau to Recognes Bertrix, Ste Cecile, Champierre, Florenville, and thence back to the starting point. There were many turns in the course, but there were also many stretches where high speeds were attainable. The racing machines had to cover the course three times and the tourists twice. Twelve competitors started in the racing class. Anzani, Contant and Champoiseau rode Aleyons; Demeester, Cissac and Giupponne rode Griffons, and Tavenaux, Prevot and Fauvet rode Rene Gillet machines. In the heavier class there was a Griffon, an Aleyon and an Andain. None of these three figured in the winning positions, however. Giupponne rode a very fine race, and was remarkably free from trouble. He covered the full distance in 2 hours 55 minutes 45 seconds. Giupponne's average was little over 58 minutes. Cissac was second, and Demeester third.

WORRIED OVER GASOLINE

London, Sept. 10—The increase in the price of gasoline is continuing to create a very considerable stir in the press at least and calls are being made upon the automobile bodies to do something which will very likely result in some practical efforts to find a way out of the grip of the oil trust. The Society of Motor Manufacturers has the matter under discussion and meets next week to probably define a programme. The real reason for the increase has only now appeared. It is the introduction of a still heavier grade of spirit. When the ring of distillers first introduced the .70 spirit it was on top of a rise of 6 cents per gallon and a scare cry of impending famine of the other. Since then shortage of supply has been the alleged reason for the gradual rise from 14 cents a gallon to 20 cents wholesale. Now the corollary arises in the shape of a still heavier spirit than the .70 offered at a reduction of 3 cents per gallon on the price of the .70 spirit.

ENTERTAINS THE MAYORS

Chicago, Sept. 27—One of the largest turnouts of automobiles ever seen in Chicago was witnessed this afternoon when 1,000 mayors in attendance at the meeting of the League of American Municipalities were taken for a ride on the south side boulevard system by Joseph Beifeld, chairman of the entertainment committee.

BLOW TO PARIS TRADE

Big Firms Fail to Do Business Expected—Reasons for Falling Off in Retail Sales

Paris, Sept. 14—Great dissatisfaction is being felt in several quarters regarding the results of 1906 Paris home trade. Several of the bigger firms have not made the sales which they had expected. The works have been kept busy, but not at any extra rush since the strike in May, and there are numbers of retail houses with a quantity of machines on hand. The season in Paris extends over about 4 to 5 months, and by July the customer who has not made up his mind to purchase generally awaits a sight of 1907 models.

Among other things which tend to make trade slack for the big firms is the increase in the number of small factories, and the consequent diversion into these channels of orders for private machines which they were wont to receive, and at their own prices. Thus, the commercial side of the trade is beginning to meet with more encouragement from the larger firms and industrial vehicles are being pushed in the slack season. Renault Brothers, for instance, have made some good contracts for 8-horsepower motor cabs, intended for the London and Paris streets. There are some 250 of their cabs running in Paris at the present moment, and a very satisfactory and popular lot of vehicles they are, with their smart driver and taximeter to control the cost of hire. Among other details tending to cast a gloom over the prospects of French trade and causing Frenchmen to put the question as to whether their supremacy as a world's automobile center is declining, is the fact that England will produce, it is stated, 10,000 machines during 1907. German and Belgian firms, too, are all growing, although definite figures are lacking in these quarters. Italy, however, is making great preparations for 1907, as, in fact, it did for 1906; but a year ago their preparations were premature, while now everyone knows that they are serious.

The Fiat firm will turn out 1,200 machines in 1907 instead of the 600. The Itala follow suit, arranging for an output of 600 instead of the 300. The Bianchi works will try to turn out 300 instead of the fifty expected, and they are all going to make a great effort to keep a grasp of the home trade while looking out for exports. It would perhaps be too much to say that 1906 season has been a bad one in Paris, but the fact remains that no exultation is being shown. The smaller firms which are now springing up like mushrooms around and about the suburbs of Paris—land is too expensive inside the city—may not each be making great headway, but taken in the aggregate they make an appreciable difference in the orders coming to the big

firms and the quality of the work must accordingly suffer in both cases, since the price is also cut. All these small firms are making efforts to make a good showing in December, and it is certain that there will be a large number of machines shown at the salon which will have a marvelous appearance and power for the price demanded. The day of the big firm in Paris is not yet over, but fresh lines to work on are looked for, and these are being found among the commercial and industrial and even professional users of the motor car.

GOOD ROADS VICTORY

Detroit, Mich., Sept. 24—By a relative vote of nearly ten in favor to every one against, Wayne county has just passed what has been known for some time as the "county road bill." The provisions of the bill were warmly endorsed by the members of the Detroit Automobile Club. Michigan's county road bill was made possible through the efforts of ex-Senator Horatio S. Earle, the state's good roads apostle. According to its provisions, the county will be assessed at the rate of not to exceed a 1/2 mill for the purpose of road construction, and the amount available the first year is estimated at \$175,000. This sum will be expended by a commission of three, one to be appointed by the mayor, to serve for 6 years, while the other two will be selected by the county clerk, to serve terms of 4 and 2 years, respectively. This commission has the power to make all contracts and has absolute jurisdiction over the locating of the improvements and the apportionments of the expenditure. Although it is merely in the nature of a forecast, it is believed the commission will direct its first efforts to the construction of a modern macadam road to the west of the city, in the direction of Ann Arbor, as the north and east sides of the county are now provided with a fine trunk line. The road will run toward Ann Arbor and be one of the long links in a chain that will stretch in time from Detroit to Chicago.

TIRE A FOE TO DUST

London, Sept. 11—M. T. Dunn, a well-known tire expert and inventor here, announces that he has produced a motor car tire on the pneumatic principle which is practically non-dust raising—certainly no more so than an ordinary steel tire. The details of the construction are scant, but it is admitted that they hang round the construction of a transversely inflexible air cover. In this the tread of the tire acts, under road pressure, as though it had a stiff support under it between the air column and the ground. The line of contact with the ground is taken up by a narrow metal band, and as the tire does not alter in its conformation so as to swallow up this narrow metal band, as other pneumatic tires would do, the reason for the non-dust raising is apparent.



LEGAL LIGHTS AND SIDE LIGHTS



NEW LAW IN GEORGIA

A law enacted by the recent legislature of Georgia has received the governor's signature, and is now effective. This measure demands that all vehicles of the motor class must be registered if they desire to operate, and must come to a stop at stipulated distances in the front or rear of horses and mules, and that any officer of the law has the power to arrest anyone whom he sees violating the provisions of this act. Following is the bill:

Section 1—Be it enacted by the general assembly of Georgia, and it is hereby enacted by authority of the same, that from and after the passage of this act it shall be unlawful for any person to run an automobile, motor cycle or other similar machines over the public roads of the county of Catoosa at a greater rate of speed than 10 miles an hour.

Section 2—Be it enacted by the general assembly aforesaid, that it shall be the duty of anyone in charge of or running an automobile, motor cycle or other motor vehicle upon the public roads of the said county of Catoosa, who is meeting or approaching anyone driving or riding a horse or mule to bring his machine to a full stop at least 150 feet from said horse or mule, and shall shut off all machinery and stop all noise being made by the same until said horse or mule has passed his machine and is at least 50 feet beyond the same.

Section 3—Be it further enacted by the authority aforesaid, that when anyone in charge of or running an automobile, motor cycle or any other similar machine upon the public roads of said county of Catoosa shall approach from the rear anyone driving or riding a horse or mule, he shall blow his horn or whistle before he approaches within 150 feet of said horse or mule hitched to a vehicle or tied, the speed of his machine so as to enable the person in front of him to unhitch the horse or mule or get out of the way of said machine, and that he shall not pass said team at a greater rate of speed than 2 miles an hour.

Section 4—Be it further enacted by the authority aforesaid, that when anyone running an automobile, motor cycle or other similar machine upon the public roads of said county of Catoosa is approaching a horse or mule hitched to a vehicle and tied to a post, tree or other fastening, shall stop his machine at least 200 feet from said horse or mule and give the owner of said horse or mule a chance to unhitch him from the vehicle or remove him to a place of safety.

Section 5—Be it further enacted by the authority aforesaid, that no person shall be allowed to run an automobile, motor cycle or other similar machine upon the public roads of said county of Catoosa without first having registered his machine and received a number from the clerk of the superior court of said county of Catoosa. Said number shall be displayed at some conspicuous place on rear of machine, as indicated by said clerk, and that each figure in said number shall measure at least $1\frac{1}{2}$ by $2\frac{1}{2}$ inches.

VIRGINIA'S LAW

The New Mechanicsville Turnpike Co., of Richmond, Va., has sent out the following letter to owners of automobiles in Virginia:

"You are informed that the provisions of the act of assembly approved March 17, 1906, regulating the running of automobiles, and contained in chapter 299 of acts 1906, have been adopted by the board of supervisors of Henrico county, which county is traversed in part by the roads of the New Mechanicsville Turnpike Co. and the Brook Turnpike Co. Section 6

of this act is as follows: 'It shall be the duty of the owner or the driver of any machine run upon any turnpike, upon passing a toll-gate, to exhibit his certificate to the toll-gate keeper, who shall enter the name and address of the owner and the number of the machine, together with the hour and day of the passage through the gate of the machine, in a book kept for such purposes, which book shall be furnished all the toll-gate keepers by the several boards of supervisors. And it shall be the duty of the owner or driver of any machine, to exhibit his certificate for inspection, when so requested by the sheriff or any constable, policeman or peace officer.'

"Under the provisions of this section, it becomes the duty of these companies to require all automobiles traversing their roads to come to a full stop at each toll-gate, in order that the certificate may be exhibited and entry made as required. Section 11 of the statute imposes a very severe penalty upon the toll-gatherer for not enforcing its provisions, and upon the driver or owner of automobiles for not obeying them. It is earnestly desired that users of automobiles traversing the roads of these companies will obey the law implicitly and invariably, and thus prevent the necessity of its enforcement by closing the gates."

NEW ANGLE IN TAG CASE

Philadelphia automobilists were much interested 2 weeks ago when it was announced that owing to a defect in the wording of the new Frelinghuysen automobile law only four men in the entire state of New Jersey—those special officers who received their commissions direct from the motor vehicle department—were clothed with legal authority to stop cars and investigate the authenticity of licenses and tag numbers. The Quakers were painfully aware that policemen in cities and constables in towns and villages in the Garden state were assuming authority to make arrests, whether or not they were legally entitled to do so. Fines had been assessed and paid, whether legally or not. With but four men in New Jersey who could legally stop them, they saw a return of the good old road-burning days. But on Thursday last Commissioner of Motor Vehicles Smith dashed their hopes by coming out with a statement that any peace officer could stop a car for a suspected violation of the law, and could then ask to see the operator's license. The order to stop, it seems, must not be based upon a suspicion that the license is not O. K.—unless it happens that the stopper is one of the elect quartet. See? The ordinary cop who suspects that a license is not regular can stop a car and give warning, say, for overspeeding, and then

casually ask to see the operator's license, and if the credentials are not at once produced he can drag the party before a magistrate.

MUST KEEP TO RIGHT

The city council of Tacoma, Wash., has just passed an ordinance requiring drivers of all vehicles to obey the general road rule, "keep to the right." There is a state law covering the same ground, but through the local measure it becomes possible to assess a fine as high as \$100 for violations within the city limits. The ordinance was passed largely through the influence of the police, and the purpose is to rigidly enforce it. The ordinance is as follows:

Section 1—Whenever any persons driving vehicles shall meet on any street in the city of Tacoma, the person so meeting shall seasonably turn their vehicles to the right of the center of such street so as to permit each vehicle to pass without interfering with or interrupting the other. On all streets running north and south, or northerly and southerly, vehicles driven south, or southerly, shall be kept to the west, or westerly side of the center of such streets; the vehicles going in the opposite direction on such streets shall be kept to the east, or easterly side of the center of such streets. On all streets running east and west, or easterly and westerly, vehicles driven west, or westerly, shall be kept to the north, or northerly side of the center of such streets; and all vehicles going in the opposite direction on such streets shall be kept to the south, or southerly side of the center of such streets.

Section 2—No vehicle of any nature shall be driven so that any of the wheels thereof will run in the gutters bordering the streets, on any paved street.

Section 3—Any person driving any vehicle, whether propelled by horses, or by motive power, whether he be the owner of such vehicle or not, who shall violate any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and upon conviction thereof may be punished by a fine not to exceed \$100 or by imprisonment in the city jail not to exceed 30 days, or by both such fine and imprisonment.

DOSE OF OWN MEDICINE

The boot is now on the other leg. But a short 3 weeks ago the Philadelphia papers were full of the doings of one Haseltone S. Lever, a brother of the Abington chief of police, who amused himself on at least two occasions by sending leaden missiles in pursuit of flying automobiles on Old York road. The overzealous cop suffered a sharp call-down for his recklessness. Only recently he rushed into the station with the tale of an automobilist who, driving his car at a 35-mile clip, fired two shots from a revolver at him as he flew by. Lever swore that the car carried no lights or tags, so that it will be impossible to trace the malefactor. He says he thinks it was a deliberate attempt to murder him for his earnest efforts to keep Old York road a law-abiding highway. Some local automobilists are cruel enough to insinuate that Lever and his fellow-officers are trying to lessen the weight of public displeasure that has been heaped upon them since last week's gun-play, but that the counter-irritant scheme is too transparent to pass muster with the Quaker motorists.



THE READERS' CLEARING HOUSE



THINKS PRICE ONLY FACTOR

New York—Editor Motor Age—The account of the Illinois hill-climb in your recent issue was very interesting. Something must have happened in Chicago of late, because Chicago automobilists are doing something. It has been surprising to those who remember what you did in cycling to note what little had been done in automobilism in a sport way by Chicago. It looks now that you are going to catch up with the records made in other sports. It is quite true that Chicago is the first place in the United States territory to carry out a handicap hill-climb, figuring cylinder dimensions, multiplied by the time in seconds, and divided by the weight of the cars. All this is very interesting and makes the officials hustle, but I do not believe it will catch on with the public. It will be back to price and performance, when a man is figuring on buying a car. He will not figure on how many inches of cylinder space he is buying or how much weight of car; but he will figure as to what his friends and others have got out of their cars in a performance according to the price paid for the car. I believe it will be a question of price and performance, so your handicap formula, after all, as far as stock cars go, will not be a success. When it comes to racing cars it will be a different matter, as the public is not buying racing cars to any extent.—W. J. Morgan.

FROWNS ON ROAD TESTS

Ottawa, Ill.—Editor Motor Age—A word concerning the Iowa law question. The writer is an enthusiastic automobilist and has run several cars of high power and speed. I can see no reason for the Franklin company's complaint, especially in the light of Attorney Francis' explanation. The Franklin as well as other transcontinental runs, hill-climbing contests, endurance runs, etc., are purely advertising arrangements and the roads are no place for these firms to advertise their wares if it must be at the expense of life and limb and the good will of the non-automobilist public. Moderation and good judgment—i. e., common sense—must be used if one is going to encourage laws favorable to the automobilist. Such contests prove nothing.—George W. Smith.

ADJUSTMENT NECESSARY

Ottawa, Ill.—Editor Motor Age—I have been a reader of Motor Age for over 2 years and find the Readers' Clearing House by far its most interesting feature, only wishing more queries were printed therein. I wish information on the following: A single-cylinder Rambler runs well as far as power and speed are considered. Storage battery is used and spark is good; no trouble on high speed with its moderate engine speed. On low gear, with high engine speed, it misses. When car

is standing and motor is throttled it misses regularly every second explosion. Upon opening throttle it misses half a dozen or more explosions until considerable speed is obtained. When a very high speed is attained it misses the same as on low gear. Carburetor trouble, I presume, but what adjustment can be made? Plug shows no soot. Reducing gasoline cuts down the power.—George W. Smith.

Apparently there is a superabundance of gasoline to give correct mixture. At the same time there may be trouble at the timer. If cutting down the gasoline does not remedy the trouble, look to the timer.

VALVE SPRINGS

Kalamazoo, Mich.—Editor Motor Age—If convenient, please inform me through the medium of the Readers' Clearing House how I can tell if the valve springs on my motor are of the same tension—or is it necessary to have them exactly alike?—E. T. D.

If the inquirer refers to inlet valve springs, and they are atmospherically operated, it is desirable they have as near the same tension as possible in order that the cylinders may receive practically similar charges of gas. The springs may be gauged for tension by placing weights on them and noting the amount of depression. In procuring new springs several may be tried and it will be found they will not vary to any great extent. One new spring should not be used alone, unless it is tested and found to have the same tension as the other springs.

COMMENDS PLAIN FITTINGS

Plainfield, N. J.—Editor Motor Age—The editorial entitled "A Move Toward Plainness" in the September 6 issue of Motor Age is thoroughly sensible and was doubtless read with approval by a large majority of your readers. Nevertheless it overlooks the fact that the manufacturers of cars are not in the least responsible for the efflorescence of brass work and decoration on their cars. They simply give the public what they have found by experience the public wants. Of course, the man who cares for his own car does not like to spend his time polishing brass work, but that is a consideration which does not appeal to him till after he has bought the car. At the shows he sees all the higher-priced cars resplendent with brass-plated levers, brass-plated steering wheels and steering columns, brass-plated hub caps, lamp brackets, etc., and he feels that if he is to hold up his head at all he must have the same redundant glitter on his own machine, even though his neighbor employs a man to do the work and he does not. If the public called for tin wreaths and artificial flowers the manufacturers would be forced to supply them. In our own experience we found last year

that the majority of the manufacturers were willing to pay our prices, and admitted everything we claimed about the quality of Rushmore lamps, but nearly all of them told us that the public wanted something ornate and would not stand for the simplicity of a lamp whose exterior expressed the idea of serviceability instead of the idea of mere decoration. Again, at the shows intending purchasers would frequently say to us: "Of course, you have the best light, but why don't you get it up with a big flaring front so that it will dress the car?" So insistent was this demand for something that would "dress the car" instead of being sufficient in itself, that we added a flaring front door to our regular type of light, and during the season just passed 75 per cent of the lights sold have been of this type, although they give no more light than the standard plain type, and are much more trouble to polish and somewhat more liable to damage in collision. When automobile users are ready to accept the dictum of Professor Sweet, that "whatever is right looks right," they will not insist on overloading a car with trumpery decorations out of keeping with the service to which it is put, and the question of plated versus enameled levers, etc., will settle itself.—Rushmore Dynamo Works.

DANGEROUS ADVICE

Peoria, Ill.—Editor Motor Age—I beg to repeat what was printed in a local paper as a dangerous bit of advice to automobilists from the very dangerous "expert." It reads as follows: "An expert automobilist in the city has discovered a new way by which to clean a gritty chain. He raises the rear of his car on two jacks, elevating one side higher than the other. He then starts the motor and gently sprinkles sand on the chain. In this way the grease and dirt are eliminated. The experiment may play havoc with the gearing, but the dirt is eliminated all the same." One afternoon recently a well-known automobile salesman was caught treating a chain in this fashion. Can't the fools be suppressed?—Subscriber.

ABOUT 30 HORSEPOWER

Milwaukee, Wis.—Editor Motor Age—Please tell me through the columns of the Readers' Clearing House how much power a four-cylinder motor, 4¼ by 5 inches, with mechanical valves in the head and having batteries for ignition, will develop under ordinary conditions.—J. B. Greenhood.

A motor of this size ought to develop from 28 to 32 horsepower if well designed and carefully made. Much depends upon workmanship, design and the amount of compression allowed. Two different makes of engines, though of the same dimensions, would vary considerably in power.



FROM THE FOUR WINDS



Canadian Show—The international automobile and sportsman's show, promoted in Montreal by R. M. Jaffray, will be held the week of April 6.

Germany Relents—Chancellor von Bulow has directed the German customs administration to lighten the restrictions placed upon foreign automobilists touring in Germany. The Imperial Automobile Club is responsible for the order.

Big Race for Next Year—The Italian Automobile Club, which was forced to postpone the Brescia road race this year because the government would not furnish soldiers to police the course, has decided to promote a big road event next season under the auspices of the Automobile Club of Turin and get along without the troops.

School in Columbus—The Young Men's Christian Association, of Columbus, O., will start, October 1, a school for the development of expert drivers. The school will have at its head C. C. Bramwell, superintendent of the motor department of the Columbus Buggy Co., and W. J. Grube. Bramwell will do the lecturing to the class and Grube the demonstrating, the latter following up the talks with practical illustrations of the workings of a car.

To Connect Towns—The special committee of supervisors which recently investigated the roads of Chautauqua county, N. Y., is ready to make its report to the board. The general plan to be recommended will be to connect the cities and principal villages of the county by improving the principal roads. When these roads are macadamized according to the provisions of the good roads laws, all parts of the county will be brought into better connection, and there will be a system of the finest boulevards in the country for automobiling through one of the most productive regions of New York state.

Owner Liable—"If the operator of an automobile which is exceeding the speed limit cannot be identified and apprehended, the owner is liable." Such is the dictum of Judge Beitler, handed down in the quarter sessions court in Philadelphia. The case was that of the city vs. William B. David, the latter the owner of a license which corresponded with the number on a car which hit the high places on North Broad street on June 28, and which the motor cycle cops could not overhaul. The number, however, was secured and the next day David was arrested and fined by the magistrate. He appealed, arguing that the law only held the operator accountable, and that he, therefore, not having been in the car, could not be fined. "All wrong," responded the judge. "If that were good law the citizens would have no protection at all. It would be the excuse in the case of every chauffeur who escaped

identification after having broken the speed ordinance of the city." If David is proved to be the owner and licensee of the car, therefore, the costs of the appeal will also come out of his pocket.

Laudable Ambition—The supervisors of Muskegon county, Mich., have decided that that county shall have the best roads in the state if possible. For that purpose they have decided to raise \$32,715 by taxation as soon as possible.

Oil Instead of Water—Among the few cities in the country that have decided to substitute oil for water on improved streets is Richmond, Ind. A grade of crude petroleum that contains a large percentage of asphaltum is being used for laying the dust on all macadamized streets, and it is said that the experiment so far has been successful.

Wants Tags in Front—The city council of New Orleans will be asked to pass an ordinance which will compel the owners of automobiles to have the numbers of their licenses placed in front of their machines, so they can be easily seen. At present the numbers are placed in the rear of the cars and so close to the ground that when a machine runs fast the dust which rises hides the numbers, and in case of attempted arrest the policeman cannot file the proper charges.

Wonders Never Cease—At the meeting of the Tacoma Automobile Club an invitation was received that nearly took the breath of its members away. It was to attend and designate automobile day at the Payallup valley fair. The membership of the association giving the fair is largely constituted of the farming class. It goes without saying that the invitation was heartily accepted. The inviting association offered as an inducement for the Tacoma motorists to come over to fix up the 12-mile road wherever it might be necessary. The club decided to set Saturday, October 6, as automobile day.

Going at It Right—On Saturday next there will be held in Bedford Springs a conference of the Pennsylvania Motor Federation, to further the Philadelphia-Pittsburg highway scheme. On Friday morning a contingent of prominent automobilists, accompanied by members of the state legislature, and others, will leave each of the termini of the proposed trans-state road, arriving at their objective point the same evening. Enroute each detachment will pick up recruits, so that by the time Bedford is reached it is expected that the combined parties will total at least twenty-five machines. The eastern contingent will be joined by delegations from the Lancaster and York clubs in those cities. The main object of the tour is the educational effect it is hoped it will have upon

the legislators, upon whom the need of an appropriation for carrying on the work will be duly impressed. Vice-president Rea, of the Pennsylvania, who is one of the prime movers of the project, will be on hand at the conference, which will last over Sunday, the return trip being scheduled for Monday.

Elects Officers—At the meeting of the Central Pennsylvania Automobile Association, last Monday night, at Washingtonville, State Senator Frederick A. Godcharles, of Milton, was re-elected president. The association is made up of automobile owners living in Columbia, Lycoming, Montour, Northumberland, Snyder and Union counties, and is allied with the Pennsylvania Motor Federation.

Stopping Reckless Children—Superintendent of Police Regan, of Buffalo, is going to put a new law in force in Buffalo. According to the law, boys jumping in front of automobiles, imperil their lives and annoy drivers of cars will be arrested. A house to house notification by the police requesting Buffalo parents to instruct their children not to do this is soon to be made. Genesee street, Buffalo, is noted for the number of children who gather in the street and jump in front of approaching automobiles.

Coon Hunts in Car—Dr. S. H. Ralston, Attorney Ralph Tannehill and W. W. Bennett, manager of the Standard Automobile Co., last week sped away from Pittsburg in the moonlight to a distant woods with three trusty and tried dogs. Leaving their car in a bend in a road that led off from the main highway into the forest, the hunters spent 2 hours in dogging the wily coon. When they came into town as the roosters began to crow they had five big coons tied to the rear of their car. And now it's proposed to have a coon hunting party in Pittsburg.

Dumont's Latest—September 13, it is believed, for the first time an aeroplane, carrying a man and driven by a gasoline motor succeeded in quitting mother earth by its own means, sustain itself and remain several seconds in the air. It is the new venture of M. Santos Dumont. The trial took place at Bagatelle, within the city limits of Paris, and two attempts were made to take flight. The first failed owing to the propeller being too small. It was changed and the machine, on a second trial, left the ground about 3 feet and continued thus for 15 to 20 feet. Then the inevitable accident occurred and the aeroplane returned briskly to the ground. The propeller, located in the rear of the machine, apparently touched the ground, owing to the angle of the aeroplane, for it was splintered and damaged other parts of the aeroplane. However, the thing has

been done and Santos Dumont is pleased with the partial success. Trials will be resumed almost immediately. It is calculated that a speed of 20 miles per hour can be attained.

Labor Interested—The Missouri Federation of Labor, which recently met in Moberly, Mo., voted to co-operate with the Good Roads Association of that state and to work to have passed laws for the improvement of roads in that state.

Long Drive In Air-Cooler—Louis Newberger, an Indianapolis attorney, has just completed a 5,000-mile tour in an air-cooled Marmon, which lasted 2 months, although the car was on the road only 6 weeks. The trip was through New York, New Jersey, Connecticut, Rhode Island and Massachusetts and included climbs over the Catskills, Lebanon and Berkshire mountain ranges, the car making the trip without a break of any kind.

Working on New Road—The work of building the new state road, in the town of Geneva, N. Y., is progressing favorably. The road is one of the most used by automobile drivers in passing through that section. During the past summer it is estimated that, on an average, as many as fifty machines a day passed over the road. The drivers have been inconvenienced somewhat by the work of constructing the new piece near Geneva, but aside from this they state that the road is as fine a country thoroughfare as is to be found in the state.

R. F. D. Argument—Rural route carriers unconsciously gave a strong argument in favor of the automobile at their state meeting, held in Anderson, Ind., when they declared they must have \$250 a year additional for the care of their horses. It was stated that the cost of caring for a horse alone was not less than \$20 monthly, to which must be added harness and vehicle repairs. In the face of this, carriers who had made use of automobiles on their routes stated they were not as expensive by half to maintain as horses and that half of the time could be saved. There are about 1,900 carriers in Indiana, and it is predicted that the majority of them will be using automobiles as soon as they can afford to buy them.

New York's System—The New York state engineer and surveyor, Henry A. Van Alstyne, has issued the following statement about the good road improvements in the empire state: "The state is now for the first time in its history pursuing a systematic plan for the construction, maintenance and repair of the miles of highway within its boundaries: First, by extending state aid in the construction of a county and state system of main or market roads equitably apportioned among the counties and covering a distance of 7,500 miles. Of this, 692 miles have already been improved; second, by extending state aid to all the towns which have substituted for the antiquated system of work-

ing out the road tax, the more modern and business-like method of paying for the improvements in cash."

No Sunday Driving—In Switzerland the authorities are becoming so strict that in certain provinces automobile travel on Sunday is not permitted because the peasants, who turn out in large numbers that day in their holiday attire, object to being smothered in dust.

To Relieve Chicago Congestion—Pine street from Ohio south to Michigan street, in Chicago, is being repaved with macadam, and this act will relieve the congestion on Rush street, which has been the connecting link between the north and south side boulevard system. At the present time there is always a jam at Rush street bridge during the busy hours caused by all traffic coming down that street from the north.

Denies Anti-Horse Crusade—President Francis, of the Austin Automobile Club, of Chicago, denies the club passed a resolution asking the park commissioners to bar the horse from the boulevards on Sundays, asserting that the resolution simply called for compelling carriages used in funerals to go single file instead of three and four abreast, that on Sundays slow-moving vehicles be required to keep close to the curb and that on boulevards where two drives exist that one be given to the automobilists. The park commissioners, however, declined to accede to the request of the club.

Englishman Discovers Something—An English lawyer has caused considerable attention here by pointing out that it is open to any person whose personal comfort, health or property is injuriously affected by any nuisance created by motorists to appeal to the high court for an injunction to discontinue which must be granted if the nuisance is proved, no matter what the conditions creating it. This looks so like Shylock's pound of flesh without blood that motorists pooh-pooh the suggestion, but in the present temper of the people it will be well not to force the matter to an issue. The suggestion is largely leveled against the motor bus nuisance.

Grand Rapids' Plans—The Grand Rapids Automobile Club has awakened to needs for good roads and this winter will plan a campaign for next spring and summer for the betterment of the highways leading into the city. The first meeting of the club will be held the first week in October and already several plans are under consideration for discussion at that meeting. The improvement of the roads to Cascade and Grandville will be discussed and some action probably taken toward their improvement. Dr. Perry Schurtz is a member of the national good roads committee, and he will have charge of the work. The club is also considering placing signs along the highways to indicate the direction and distance to the city as well as near-by points. It is believed that this

will be a great help to the automobilists and will also aid in the promotion of tours throughout the immediate vicinity.

Burns Up His Car—H. E. Hille, of St. Louis, is credited with deliberately burning up his car because it would not run. This was at Billtown, Ind. A crowd had gathered around and was guying him, so he secured a gallon of coal oil and poured it over the rig. Then he offered to sell it for \$15 and when one man took him up he refused the offer and applied the match. He gave the ruins to a bystander and took a train home.

Fine Too Light—Police Inspector Whitaker, of New Orleans, in view of the recently inaugurated crusade against violators of the speeding ordinance in the Crescent City, has started a movement to have the city council pass a new law or amend the present act in this regard. He says the present maximum fine of \$2.50 for the offense is too small an amount. The fine, he states, should be as it is in other large cities—\$25 for the first offense, \$50 for the second offense, and \$100 for the third offense. For the fourth violation the driver's license should be taken away from him, which prevents him from running a machine again.

Winning Under Difficulties—A Bianchi recently won a hill-climbing event promoted by the Irish Automobile Club, but only by a remarkable bit of work. The machine had arrived within 5 miles of the course when the engine stopped, and it was found that the gasoline feed pipe inside the tank at the rear had become loose, thus allowing the air pressure to escape. Although only an hour remained before the climb commenced, the pressure system was turned into a gravity system by some rubber piping and a gasoline tin, held in the owner's arms. Despite the crude arrangement the car ran so well that it won the contest easily, beating two 40-horsepower Napier machines, an 18-28-horsepower Mercedes, and a 30-40-horsepower Belsize. Hugh P. MacConnell was at the wheel.

New Idea for Motor Cycles—At Achères, some 15 miles from Paris, where exist some good secluded roads, have just been carried out some tests with a motor cycle propelled by an aerial fan or propeller. M. Archdeacon, who announced several months ago his belief in the practicability of the mechanism, conducted the trial. The cycle has the ordinary gasoline motor, geared to a horizontal shaft situated parallel with and 8 inches above the top bar of the machine and extending ahead of the front wheel sufficiently to give clearance to the large two-bladed fan which revolves at a high speed. The cycle, with mechanism, weighs 150 or 160 pounds. Speed over a kilometer was timed and attained nearly 49½ miles. The propulsion is really made by aspiration, since the fan pulls rather than pushes the cycle. It was ridden by Anzani.



AMONG THE MAKERS AND DEALERS



Takes On the White—The Missouri Valley Motor Co., of Kansas City will handle the White exclusively next year.

Pierce Agent Locates—The Palace Auto Co., of 1408-10 Walnut street, the Kansas City agent for the Pierce, is installed in its new quarters. It occupies a building of 50 feet frontage, two stories and basement.

M. & W. Removal—Announcement is made by Morgan & Wright that by October 1 they will be located in their new factory at Detroit, the plant occupying 7 acres, and it is claimed to be the best equipped and most perfectly appointed rubber goods plant in the United States.

Looking Up Business—Manager W. F. Smith, of the Philadelphia Rambler branch, accompanied by Barrett Cleaver, of Thomas B. Jeffery & Co., left the quaker city in a four-cylinder Rambler on Saturday for a business tour to Savannah, Ga. They expect to cover 1,500 miles before their return and will look over the field in Charleston, Columbia, Wilmington, Raleigh and Richmond.

Canadian Company Organizes—The Iroquois Motor Car Co., of Canada, completed its organization at a meeting held recently in Welland, Ont. The following board of directors was elected: W. C. Jaynes, Buffalo, president; J. F. Mills, Buffalo, vice-president; G. C. Brown, Welland, secretary and treasurer; J. H. Crow and R. Cooper, Welland. The company has a capital stock of \$96,000, with its head offices in Welland. It has acquired two eligible factory sites in that town.

To Be Called De Dietrich—A number of changes have been announced by the Kansas City Motor Co., effective September 15. E. L. DeCamp, formerly with the Hyde Park Automobile Co., of that city, becomes general manager, in place of George K. Wheeler. F. E. Wear continues as president. A number of changes in the holding of the stock are said to be contemplated, but have not yet been made. The entire output of the factory, including pleasure and commercial cars, will be placed by Christie & DeCamp, who have been appointed general sales agents. L. M. De Dietrich, formerly with the Aerocar Co., of Detroit, has been secured as chief engineer and factory manager and has already assumed his new duties. The models which will be turned out hereafter, with the exception of some now building on order, will be called the De Dietrich. For next season there are planned, along entirely different designs from those formerly used by the company, two touring models, one of 55-60 horsepower, and with four cylinders, and another of 75 horsepower, seven passengers, also four cylinder. The offices and the factory of the

company, according to present plans, are to be continued at the same locations as heretofore.

Temple Changes Agencies—The Ralph Temple Automobile Co., of Chicago, has taken on the Jackson in place of the Reo.

Motor Shop Growing—The Motor Shop, 317-319 North Broad street, Philadelphia, G. Hilton Gantert manager, last week landed the Stearns agency for Philadelphia and adjacent territory. Extensive alterations are now in progress at the Motor Shop's quarters to make room for the Stearns contingent.

New Plant Installed—The brass and aluminum foundry of the Walter Automobile Co., in Hamilton township, Trenton, N. J., is completed, and the machinery is in operation. A duplicate of the present machine room, 150 by 300 feet, is shortly to be built and will be used for the assembling of the machines. According to Superintendent Lee, the machines will be on the market within a month.

Pierce Agent in Jersey—The Ellis Motor Car Co., of which W. H. Ellis is proprietor, has been established at Newark, N. J. The company will handle the Pierce in northern New Jersey, the territory including Ocean, Monmouth and Mercer counties, and all north of those counties. Mr. Ellis was connected with the George N. Pierce Co. for 9 years, dating back to the old bicycle days, when he was attached to the Boston branch. He will not do a garage business, but simply look after his own customers.

Ford Managers Entertained—Managers of the Ford branch stores last week were guests of James Couzens, secretary-treasurer of the company, in Detroit. The primary excuse for the meeting at headquarters was to discuss and decide on policy and plans for next year, but inasmuch as no radical changes were contemplated, this was soon disposed of. Each day there was a short business session. Henry Ford placed three six-cylinder cars and a four-cylinder runabout each at the disposal of the visitors. Among the enjoyable trips was one to the Ford farm a few miles from Detroit, where Mr. Ford exhibited his model dairy and his "shoat factory." There were just twenty-seven new pigs the morning the managers went out and Ford said he hoped soon to equal the present output of the runabout factory, thirty per day. A frog dinner was the piece de resistance for Wednesday evening. Next day there was a dinner at the Detroit Yacht Club and then a ride in John Dodge's new 94-foot steam launch. Among those who spent the week at Detroit were: Gaston Plaintiff, of the New York branch; Charles E. Fay, Boston; F. C. VanDerhoff, Philadelphia; Thomas Hay,

Chicago; Louis C. Bloek, Buffalo; Charles C. Meade, Kansas City, and Harry L. Cunningham, Cleveland.

Now a Franklinites—L. E. Hoffman, formerly manager of the Ford Philadelphia branch house, is now located at Syracuse, N. Y., with the H. H. Franklin Mfg. Co.

Cartercar Added—The Cartercar is the latest recruit to secure representation in Philadelphia, the Belmont Auto Station, at 1519 Belmont avenue, having secured the agency for the quaker city and vicinity.

Wants Catalogues—B. G. Raymond, formerly in business at St. Cloud, Minn., has established himself at Bottineau, N. D., and announces he is anxious to get catalogues from automobile parts makers, as he is figuring on building a small runabout for the 1907 market.

Fairbrother In Charge—E. A. Fairbrother, acting manager of the Aerocar Co., of Cleveland, succeeds H. H. Thorpe, who recently severed his connection with the Cleveland branch. This company handles the Maxwell and the Aerocar at its Euclid avenue show rooms.

Woman Advertising Manager—Mrs. Frances A. W. McIntosh, formerly advertising manager of the Standard Tool Co., of Cleveland, O., and more recently connected with the advertising department of Power, New York, has taken charge of the publication department of the Norton company, of Worcester, Mass.

Butler a Cleveland Man—L. B. Butler is to look after the interests of the Cleveland Motor Car Co. in Boston. Several changes have taken place in the affairs of the company and it is now incorporated under the laws of the state of Ohio. W. L. Colt, who was the manager of the old concern, has been elected president, and A. R. Davis, secretary and treasurer, while S. W. Hartley is to be engineer and superintendent.

Mystery Over a Fire—Two of the finest rubberneck automobiles in Detroit were consumed Saturday in a fire which gutted the garage in which they were kept and caused in the neighborhood of \$15,000 damage. The location was the barn on the Senator Chandler homestead on Fort street. The blaze started from an explosion in the sewer and the fire authorities are still disputing regarding the connection of the gasoline supply and the conflagration. The building is occupied by the Detroit Auto Sight Seeing & Sales Co. Two cars were in the garage at the time but neither of the engines was running. A sheet of flame burst from the sewer with a loud report, blowing off the top of a manhole in the yard and two men in the

building had hardly time to escape the resulting conflagration. The gasoline tank was untouched.

Inch Made Trustee—At a meeting of the creditors of the National Automobile Co., of New York, held recently, Robert A. Inch was elected trustee, his bond being fixed at \$3,000.

Selling Out—The Pennsylvania Electric Vehicle Co., of 250 North Broad street, Philadelphia, which is winding up its affairs, is disposing of its stock of new and second-hand cars, charging panels, battery loading apparatus, equipment and fixtures at forced sale.

Liberal Council—The common council, of Grand Rapids, at the request of proprietors of local garages, has amended the ordinance regarding the storage of gasoline so that the garages may handle the fluid in larger quantities than heretofore and may also store the liquid in the buildings, providing it is kept in underground tanks for the sake of safety.

Midgley Resigns—Thomas Midgley, president of the Midgley Mfg. Co., of Columbus, O., tendered his resignation as president on September 22, to go into effect at once. Since March, 1905, Mr. Midgley has been connected with the Hartford Rubber Works Co., Hartford, Conn., and was recently elected president of that company upon the resignation of Mr. Dale. The only reason given for Mr. Midgley's action is that his entire time is taken up with his duties at the Hartford company. Mr. Midgley leaves the Midgley company in such shape that its affairs can be easily handled by his successor, who has not as yet been named.

Banner Year for Hoosiers—Indianapolis dealers are just now closing the most successful selling season in their history. At least 700 cars have been sold, about equally divided between cars of local and outside manufacture. In many respects the season has been a peculiar one. The local sales have not been as great as expected, while sales outside of the city have been so large as to make agents open their eyes in astonishment. It is probable that half of the local sales have been to persons who were automobile owners last season or the season before. For the first time also Hoosier farmers have taken kindly to motor cars. In Rush county no less than a dozen farmers have purchased runabouts this season, nearly all of one type. This increased rural trade has been due somewhat also to the sub-agencies established by local agents, many of whom have control of the entire state for the cars they handle. Almost every town of more than 200 inhabitants has had one of the sub-agencies in the person of a hardware or implement dealer and the state agencies are enthusiastic over the work that the little fellows have done. Next year these small agencies will undoubtedly be greatly increased. There has also been another pleasing feature of the present season. At

least two-thirds of the sales, it is estimated, have been touring cars of the highest grade. The demand for runabouts has been good but not as extensive in proportion as in former years.

A Kansas City Move—The Central Auto Co., of Kansas City, has moved from its old location on McGee street to the former stand of O'Beirne & Co. at Eighteenth street and Grand avenue.

Elects Officers—The Woods Engineering Co., of Alliance, O., has been organized with the following officers: President and General Manager F. C. Wood; chief engineer, W. C. Brown; superintendent, F. A. Hobbs. The company is building a factory and will manufacture automobile parts and will build and repair machinery of all kinds.

Solves Gasoline Problem—As a solution of the waste oil and gasoline problem, the Pence Automobile Co., of Minneapolis, has worked out a plan of gasoline and oil storage and supply, which is giving great satisfaction. The question of waste was a big one in the Pence establishment, which is one of the largest houses in the west, and which does a big supply business. Accounts showed a loss of from 50 to 100 gallons of gasoline per week, and sometimes even more, from leakage and other natural causes, and from failure of employees to check up out-going supplies. All supplies had been kept upon the main floor of the Pence garage, which is a roomy and well-constructed building. The gasoline pump led to the main floor from the tank buried outside. After some figuring, it was decided to build an outside storage house, connected with the garage, but thoroughly fireproof. A small house, constructed of iron throughout, with cement floor, was erected at one corner, in the rear of the garage, with a fireproof door opening onto the garage floor. Sides and roof are of sheet iron. The total cost of construction was about \$125. This storage room was then placed in charge of one of the younger employees of the house, who acts as stockman, and through whom all supplies are drawn. Gasoline, kerosene, lubricating oil and carbide are kept here, and in place of indiscriminate drawing upon supplies, every order for any of the supplies mentioned goes through the stock boy, and is accurately checked. Leakage has been practically stopped, owing to the better care taken of the oils. A 1,000-gallon tank is buried in the alley, 20 feet from the house, and the gasoline pump is in the oil house. The stockman is paid \$8 per week. Results show that the new system saves three or four times the salary of the stock boy, and has prevented one heavy drain upon the garage. Another feature taken into consideration by the Pence company is the greater safety guaranteed, to the building and contents. Recent fires resulting from the careless handling of gasoline indicate that this is an important feature. A rule of

the Pence institution forbids the drawing of any oil supplies after dark, when the lamps are lighted. Patrons protested against this rule at first, but it is strictly adhered to.

Takes on Cartercar—The Motor Car Co. has arranged for the sale of the Cartercar in east Pennsylvania, Delaware and southwest New Jersey with Henry A. Rowan, Jr., & Co., located at 2028 Sansom street, Philadelphia.

Mears a Branch Manager—The new Philadelphia branch house of the Autocar Co., at 249 North Broad street, has been placed under the management of Frederick K. Mears, formerly West Philadelphia agent of the Autocar and proprietor of the Regent garage. Mr. Mears is now preparing for his opening.

Perrin Back With Lozier—One of the additions to the Plattsburg works of the Lozier Motor Co. is a building 200 by 60 feet which will be devoted exclusively to the uses of the experimental department, under the charge of John G. Perrin. About 1 year ago Mr. Perrin severed his connection with the Lozier company, but has now returned and is in charge of this department, which he will endeavor to maintain at the Lozier standard. Mr. Perrin takes hold at once.

Gets Plant in Leslie—The Sheridan Mfg. Co., of Jackson, Mich., has purchased the planing mill property at Leslie, Mich., from F. W. Potter, and is remodeling the building. The company will manufacture roller-bearing wagons and automobile trucks specially designed for the use of farmers. They will also make burrless hubs and boxes for automobiles, wagons and buggies. Twenty-five men will be employed by the concern. No bonus has been asked for by the company, which is well satisfied with its bargain.

Incorporates In Michigan—The Continental Motor Mfg. Co., of Muskegon, Mich., formerly of Chicago, Ill., has filed incorporation papers at Lansing, Mich., and is reincorporated under the Michigan laws. It has increased its capital stock from \$100,000 to \$125,000. It formerly was incorporated under the Illinois laws, but after removal to Michigan it found it advisable to reincorporate under the laws of that state. There is no change in the personnel of the company, and work on the 1907 product is being rushed.

Brings Out Tire Point—The Hartford Rubber Works Co. has issued a card pointing out that while there is talk of the "unsettled state of the tire market," that the company will not reduce its prices and that it will not compromise on quality. The company also announces it is prepared to supply 5-inch Hartford clincher tires for wheels already fitted with 34 or 36 by 4½-inch standard clincher rims; also 5-inch Hartford-Dunlop tires for the same sized wheels in either 1905 size or the universal type.



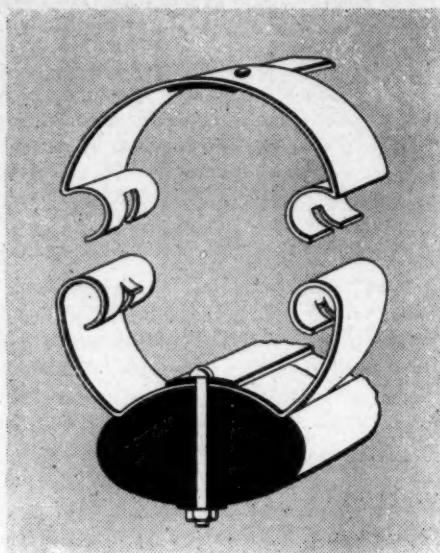
CURRENT AUTOMOBILE PATENTS



Four-Wheel Drive—No. 830,642, dated September 11; to E. Chaquette, New Rochelle, N. Y.—Mounted vertically over the front axle is a vertical-cylindrical motor which delivers its power through a propeller shaft to a change speed gearset near the back axle. From this gearset short chains transmit to a propeller shaft running to the front axle and another running to the back axle. This propeller shaft has a bevel pinion carried rigidly on its rear end and another pinion mounted loosely on its front end. In the back axle is a pair of opposed bevel gears in mesh with the rigid pinion on the shaft, but both of the axle bevels are mounted loosely on the axle and clutching means are provided for securing them to the shaft, one for driving ahead and the opposite one to be used in reversing. The loose bevel on the forward end of the propeller shaft is in mesh with a bevel on a differential in the center of the axle and arrangements are made to clutch it to the propeller shaft when driving ahead, so that on the forward speeds both front wheels assist the back ones in propelling the car but on reverse the back wheels alone do the driving. Universal joints, or their equivalents, are inserted in the front axle to permit of steering.

Prevents Back Kicking—No. 826,253, dated July 17; to T. B. Jeffery, Kenosha, Wis.—The device is for the preventing of back firing when starting a four-cylinder gasoline motor. It consists of a rod with spring combination extending forward beneath the bonnet of the car and carried close to the starting crank. This rod controls the position of the spark and is such that when drawn forward with the spark advanced prevents the cranking of the motor, and only when pushed in, at which time it retards the spark, can the motor be cranked.

Motor Car Muffler—No. 830,660, dated September 11; to O. Goldman, San Francisco, Cal.—Three compartments suffice in muffling the hot exhaust gases in this



BECKWITH'S COMPOUND TIRE

silencer. First of all is a part conical, central tube A into which the gases enter and which occupies the center of the cylindrical muffler. This chamber has one little exit opening in its inner end and a series of round openings throughout its sides. Encircling this tube is a return passage B into which most of the gas leaving A enters and by it is returned to the same end of the muffler at which the exhaust originally enters. Lastly comes the outer chamber C, in which the gases once more pass to the exit end and find easy access to the outer air. The gases in traveling through the muffler flow in a Z course.

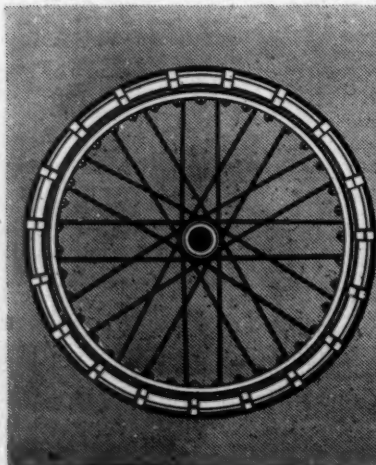
Metal Spring Tire—No. 830,873, dated September 11; to L. H. Barry, Durango, Mex.—Attached to the tire rim is a series of semi-circular springs inturned at their upward edges and provided with stops and secured midway between these ends to the wheel rim by bolts passing through the rim and the springs and a ring plate. Another set of semi-circular springs form the tread part of the tire and attach to the

inturned ends of the springs on the rim locking with the stops when pushed into final position. On the thread part of this second series of springs is a short rim piece on each serving to assist the adjacent spring in retaining its position while still having sufficient power to propel the wheel.

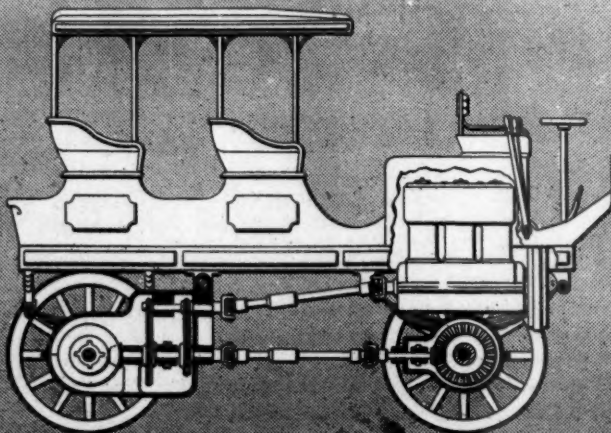
Compound Tire—No. 830,483, dated September 11; to N. Beckwith, Somerville, Mass.—This tire consists of several tires carried side by side on the wheel rim. Each of these several tires is made up of a series of yieldable sections, each section with a lip at opposite sides by which it can be fastened to the rim. The sections in one tire are arranged to break joints with the sections in the tires at either side of it. Holding the several sections together are cross bolts between the sections and clamping pieces on the bolt heads, the clamps resting against the two sections on each side. As a final security, side flanges are used.

Motor Car Bonnet—No. 829,498, dated August 28; to C. Wright, Chicago. This is a four-piece bonnet possessing two vertical sides and two top or roof pieces, which have a slant similar to that of a two-roof house. The roof parts are hinged together along their center or adjacent edges, and one of them has a metal flap which covers the hinge joint, making the bonnet waterproof. Where the tops of the sides are hinged to the lower side of the top a similar flap is used, adding a waterproof feature at this point.

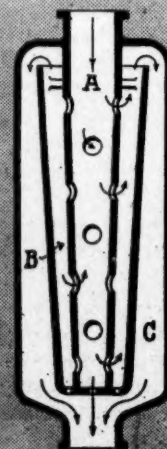
Corrugated Radiator—No. 830,369, dated September 4; to W. E. Hoys, New York city—The top of the radiator is a water tank. So is the bottom. Connecting these two is one zig-zag water course formed by the corrugations of two plates, one at the rear of the tanks and the other at the front. The corrugations of these sheets coincide and interlap so that between them is a very shallow water space.



BARRY'S METAL TIRE



CHAQUETTE'S FOUR-WHEEL DRIVE



GOLDMAN'S MUFFLER



BRIEF BUSINESS ANNOUNCEMENTS



Fall River, Mass.—The American Locomotive Co. is to build an addition to its automobile plant.

Los Angeles, Cal.—The Angelus Motor Car Co. has changed hands and is now managed by Howard Fallon.

Beloit, Wis.—The Lipman Mfg. Co. has been incorporated with a capital stock of \$60,000, to manufacture automobiles.

St. Louis, Mo.—The automobile garage of Samuel J. Keiffer, of the Colonial Automobile Co., was destroyed by fire with a total loss of \$2,000.

Boston, Mass.—The A. E. Morrison Co. has been incorporated with a capital stock of \$25,000, to deal in automobiles, by Albert E. Morrison, of Boston, and Harry E. Clapp, of Wellesley.

Portland, Me.—The Elliott Steam Vehicle Co. has been incorporated with a capital stock of \$1,500,000, to manufacture machines and vehicles, by J. E. Manter, C. B. Eaton and M. W. Baldwin, all of Portland.

Pittsburg—D. C. Collins & Co. expect to be settled in their new building at 432-434 Seventh avenue before the end of the week. The company is to have the exclusive representation of the Columbia for next season.

New York—The Amsterdam Garage Co. has been incorporated with a capital stock of \$1,000, to store, rent and manufacture carriages, boats, vehicles, etc., by E. Meyer, Jr., L. B. Kendall, of New York city, and J. B. Hobon, of Staten Island.

Sangamon, Ill.—The Sangamon Auto Garage Co. has been incorporated with a capital stock of \$6,000, to run a general automobile manufacturing, repairing and storage business. The incorporators are W. B. Chittenden, W. K. Zewadski and E. E. Barclay.

Albany, N. Y.—The Empire State garage has been incorporated with a capital stock of \$100,000, to manufacture motors, engines, wagons, boats, etc. The incorporators are H. Rau, O. Trieh, T. W. Doffie, of Brooklyn, and J. H. Springer and J. H. Ball, of New York.

Creston, Ia.—The automobile factory to be operated by Arno Peterson and B. Liegert in the old Reliable gas engine machine plant in Bettendorf is about ready to commence business. Machinery is now being installed, and it is expected that the first two automobiles will be completed by October 15.

Syracuse, N. Y.—Papers have been filed in Albany incorporating the Vehicle Wheel & Tire Co. with a capital stock of \$100,000. Edward D. Woods, of Indianapolis, and Edward Mitchell and Thomas H. Ward, of Syracuse, are named as the incorporators. The company is formed to manufacture wheels and tires under a

patent held by Mr. Woods, the inventor. The principal office of the company will be in this city.

Cleveland, O.—The Baker Motor Vehicle Co., of this city, has established an agency in Hamburg, Germany.

Chelsea, Mass.—The garage of George R. Stewart at 63 Pearl street was destroyed by fire with a loss of \$5,000.

Columbus, O.—The Darling Motor Co. has been incorporated with a capital stock of \$10,000, by R. Darling, F. J. Wolcott, F. J. Southard and Jay Comstock.

Enid, Okla.—The Oklahoma Automobile Co. has been incorporated with a capital stock of \$10,000 by F. J. Gentry, J. L. MacClelland, F. B. Hadken and C. H. Dyer.

Newark, N. J.—The F. A. Sietz Co. has been incorporated with a capital stock of \$125,000, to manufacture all kinds of engines and machinery, motor boats, motor vehicles and motor cycles.

Palo Alto, Cal.—The Corbaley & Thorpe Auto Co. has been incorporated with a capital stock of \$25,000. The company will manufacture and deal in automobiles in Palo Alto. The incorporators are H. G. Corbaley, Ray P. Thorpe and T. C. Thorpe.

Norwich, N. Y.—H. A. Duncan and A. R. Choules have purchased the property on American avenue, formerly occupied by the Norwich Light Co. The building is to be renovated, cement floors and stalls are to be put in, and it will be used as an auto-

mobile garage. A machine shop will also be fitted up by the new owners as soon as possible.

Columbia, Tenn.—Fire completely destroyed the garage recently erected at the Athenaeum by Frank Smith.

Nashville, Tenn.—The Rock City Auto Co., of Davidson county, has been incorporated with a capital stock of \$10,000.

Buffalo, N. Y.—Notice has been given by the Jaynes Automobile Co. of its intention to apply for permission to change its name to the Imperial Motor Co.

San Francisco, Cal.—The Moore Investment Co. has leased to the General Motor Car Co. the building at Valencia and Fourteenth streets for a term of 5 years, at a total rental of \$18,000.

Bridgeport, Conn.—A. M. Gydeson, who has been a department foreman connected with the Locomobile Co. of America, has severed his connection with that concern and will locate in St. Louis.

Hartford, Conn.—The R. D. & C. O. Britton Co. have filed articles of incorporation with a capital stock of \$40,000. R. D., Charles O. and Harriett W. Britton are named as the incorporators. The company will deal in motor vehicles.

Pittsburg—Manager Moore, of the Keystone Co., announces the following agencies for next season: White steamer, Welch, Stoddard-Dayton, Ford and Columbus electric. The Stoddard-Dayton was formerly handled by the Central Automobile Co.

Pittsburg, Pa.—The Atlas Automobile Co., formerly on Thirty-eighth street, and which will shortly move to 155 Broadway, has given up the agency for the Autocar and will in future handle the Stoddard-Dayton. A. H. Whiting will be associated with R. Newton.

Dorchester, Mass.—P. R. Pastene will erect a new garage at the corner of Talbot avenue and Spencer street. It is expected that the new building will be completed by January 1, and it will be under the management of Bert Brewster, of the present Talbot avenue station.

Bridgeport, Conn.—The Ariel Motor Co., which for the past 6 months has been manufacturing automobiles in the plant formerly occupied by the Bridgeport Organ Co. on Spruce street, has removed to Baltimore. The company has formed an alliance with a concern in the latter city.

Akron, O.—The Independent Tire & Rubber Co. has been incorporated at Columbus with a capital stock of \$1,000, by G. E. Allen, H. E. Address, E. A. Oviatt, and Charles T. Grant. The promoters of the company are not yet prepared to give out any definite statement of their plans for the future but will soon do so.

RECENT INCORPORATIONS

Springfield, Ill.—Sangamon Auto Garage Co.; capital \$6,000; to manufacture, repair and store automobiles. Incorporators, W. B. Chittenden, W. K. Zewadski and E. E. Barclay.

Columbus, O.—American Auto Brass Co., capital stock \$20,000. Incorporators, George F. Hill, M. B. Lee, Roy Coffman, E. S. Adams and E. B. Yohe.

New York—Continental Garage, capital stock \$50,000; to deal in real estate and store automobiles. Incorporators, J. D. Tooker, George T. Mortimer and Thomas Mirch, of 111 Broadway.

New York—Amsterdam Avenue Garage, capital stock \$1,000; to store, rent and manufacture carriages, boats and vehicles of all kinds. Incorporators, Eugene Meyer, L. B. Kendall and James W. Hobon, all of New York city.

Akron, O.—Independent Tire & Rubber Co., capital stock \$1,000. Incorporators, G. G. Allen, H. E. Address and Charles T. Grant.

New York—Robert Bosch, New York, Inc., capital stock \$25,000; to manufacture machinery, vehicles, engines, motors, etc. Incorporators, G. Klein and C. L. Schwarz.

Augusta, Me.—Biddle-Murray Mfg. Co., capital stock \$300,000; to manufacture automobiles and other vehicles. Incorporators, I. L. Fairbanks and J. Williamson, both of Augusta.

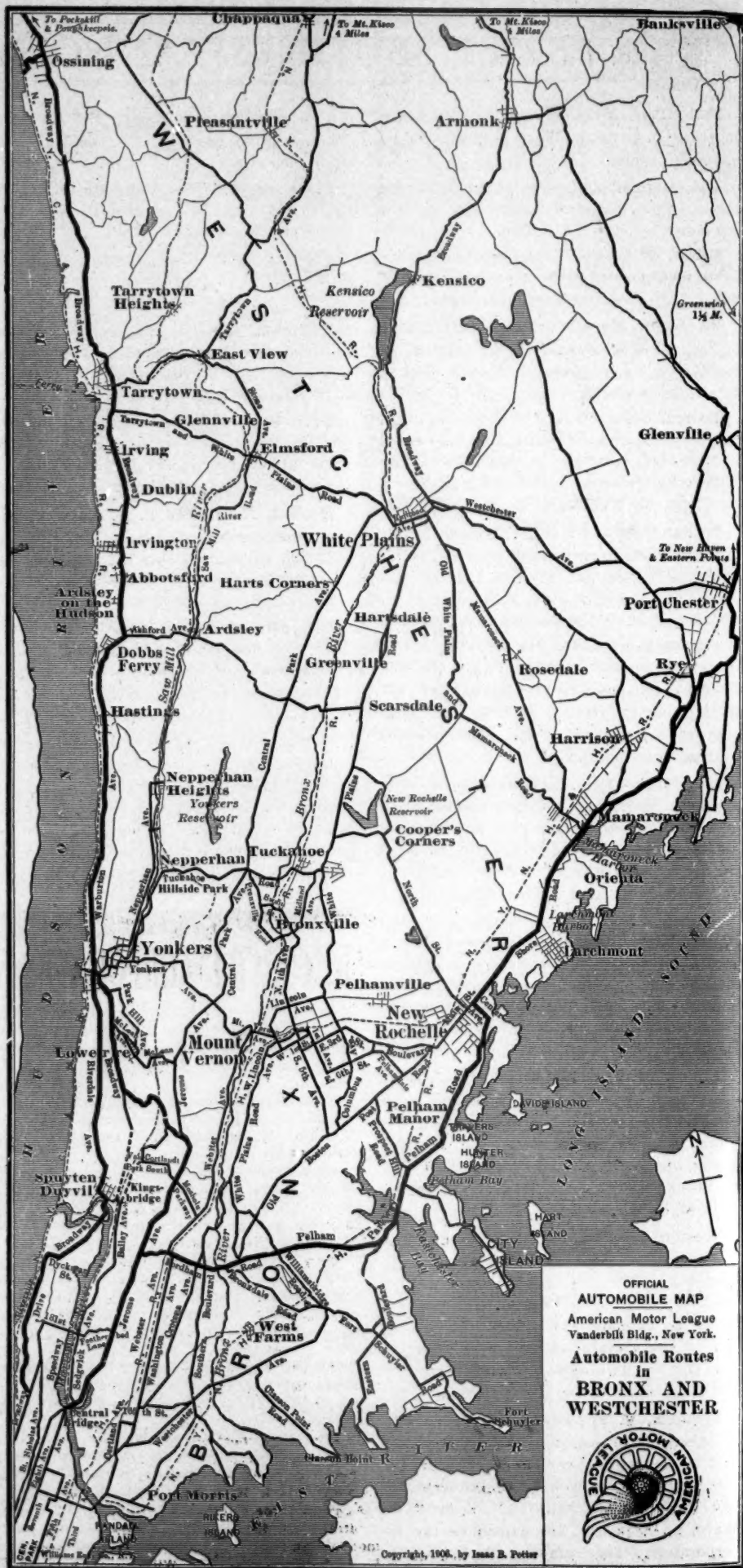
American Motor League

Official Bulletin

National Headquarters, Vanderbilt Building, New York

MAP OF ROUTE BRONX AND WESTCHESTER

The official map this week covers about 225 square miles of a popular and interesting touring section within and beyond the northerly borders of New York. The heavy black line running north and south at the left of the map shows part of the main route up the Hudson valley, leading to Poughkeepsie, Albany and Troy, and thence along the Mohawk valley to Buffalo and the west. On the right of the map is shown the Fordham road, running into Pelham parkway and thence into Pelham road, which finally joins the old Boston post road at New Rochelle and continues thence along shore to New Haven and other New England cities. Between and along these two main routes lies a country enriched by the most beautiful scenery and made famous by the writers of history and romance. Here was the home of Washington Irving, whose grave in the peaceful Hudson valley is visited by many tourists; and in this locality occurred many incidents of note in the war of the revolution. Major Andre went up this valley on the fateful errand that led to his capture and execution, and among the hills of Westchester the colonists fought the Britons and their Hessian allies for several years. There are many good roads in the Bronx and Westchester section and these are increasing. The same may be said of the hotels, for the tourist has spurred the rural host to new endeavor and the best hostelries are surviving and becoming still better. This map, and all other official maps, will appear in the A. M. L. road books, of which one copy will be given free to each league member. In the meantime, and for convenient use, these maps will be printed in card form, and each card will contain, on the reverse side, a brief description of routes, distances, road surfaces and a mention of best hotels and garages. The A. M. L. invites to its ranks all automobilists of good character. It is an organization with a purpose, and one of its aims is to furnish reliable information concerning roads. If you wish to help along this movement there is no better way to do it than to become an active member of the league at once. There is no initiation fee; dues, \$2 a year. Full printed information will be sent on request. Address, American Motor League.



OFFICIAL
AUTOMOBILE MAP
American Motor League
Vanderbilt Bldg., New York.
Automobile Routes
in
**BRONX AND
WESTCHESTER**

